A RAND NOTE

PREVENTING NUCLEAR CONFLICT: WHAT CAN THE BEHAVIORAL SCIENCES CONTRIBUTE?

J. P. Kahan, R. E. Darilek, M. H. Graubard,
N. C. Brown, with assistance from
A. Platt and B. R. Williams

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PREFACE

In the spring of 1983, The Rand Corporation began exploring with The Carnegie Corporation of New York ways of identifying potential contributions of the behavioral sciences to the prevention of nuclear war. Carnegie plans to hold a conference on the subject early in 1984. Rand was asked to review the relevant behavioral science literature and produce a policy-relevant and interdisciplinary document that would become a focal point for discussion at the conference. The work was to examine the potential contributions of psychology in particular, but of other behavioral sciences as well, to the real-world problems faced by decisionmakers in government who are responsible for policymaking with respect to the prevention of nuclear conflict.

This Note represents Rand's written contribution in advance of the Carnegie conference. Its preparation was funded in substantial part by Carnegie, but also in part by The Ford Foundation from grants provided to Rand for research in international security and arms control. In Rand's National Security Research Division, Ford-sponsored projects are designed to extend beyond the immediate needs of government research sponsors by investigating long-term or emerging problems and by developing and assessing new research methodologies. Additional funds were supplied by The Rand Corporation.

SUMMARY

This Note addresses one of the most crucial issues of our time, prevention of nuclear war, from the perspective of the behavioral sciences. Both the topic and the perspective are enormously complex subjects in their own right. Consequently, the work presented here represents the conscious honing of a complex problem into a more manageable one: What can the behavioral sciences contribute to the prevention of nuclear conflict between the United States and the Soviet Union?

At the risk of being presumptuously abrupt one could answer, "not very much." But that is far from the whole story. This Note contends that the direct applicability of empirically derived behavioral principles to international policymaking has yet to be proved. Evidence to buttress a confident assessment that behavioral research findings can be plucked "off the shelf" to solve crucial international problems remains incomplete. Nevertheless, a great body of research dealing directly with human behavior lies at the core of the behavioral sciences. Findings from this research should be able to contribute to our understanding of critical human decisions, intentions, and actions that could help prevent, as well as give rise to, nuclear war. Moving beyond questions of the immediate applicability of the behavioral sciences to such crucial issues, therefore, this Note explores some potential contributions that evidence from the behavioral sciences could conceivably make in the future.

Strictly defined, the behavioral sciences encompass the disciplines of psychology, sociology, and anthropology, but that definition is at once too broad and too narrow. It is too broad in the sense that psychology, especially social psychology, provides most of the insights into individual and group behavior, stress, and perception that seem relevant to the problem of keeping international rivalries from erupting into nuclear wars. The field is too narrow in that other disciplines or interdisciplinary practitioners also address this problem in ways that are both immediately relevant and essentially behavioral--they

investigate the behavior of humans as individuals and in social groups. The working definition of the behavioral sciences in this Note falls somewhere in between. The emphasis is primarily on the discipline of psychology, which interprets human behavior more generally and with less dependence on context than any other discipline; hence it can be applied to many contexts. But a wider range of interdisciplinary efforts is included whenever the broader international context warrants.

The problem addressed here is a nuclear war between the United States and the USSR, because that is the most catastrophic man-made disaster currently within the realm of possibility. A model of international decisionmaking behavior is introduced that treats the possibility of escalation to nuclear war as a causal chain of interrelated events. Schematically, this conceptual model is represented as a decision tree with possible intervention points identified along a path leading from underlying hostility through crisis to nuclear war, with intermediate steps along the way.

To illustrate the possibility of moving from crisis to nuclear war more specifically, a scenario is presented that posits an escalation of tension between the Soviet Union and the United States in the late 1980s that culminates in a strategic nuclear exchange. Interventions that might have averted the nuclear war at earlier points along the decision path are the subject of a retrospective analysis of behaviorally based principles. A specific intervention is posited and explained in terms of the scenario.

Previous behavioral science research in the field of international relations has mainly been of three types: (1) case studies, (2) case surveys of political events, and (3) studies of the personalities of important world leaders. Although such research has enhanced knowledge and understanding *of* the foreign policy process and influenced the theory of international relations, and many researchers have attempted to prescribe "the correct" actions as a result of their research, rarely have policymakers actually used the research *in* the actual process of policymaking.

Of the various reasons put forth to explain this lack of influence, three stand out: (1) Behavioral scientists have often overlooked or misunderstood the real constraints policymakers face; (2) the principles

of behavioral science, founded on models of individual and small group behavior, have not been demonstrably generalized to the behavior of nations; (3) the very "biases" that behavioral scientists study are those used to assess any information, including the findings of behavioral sciences.

The behavioral sciences have not yet produced measures that immediately appeal to the policymaking community, but there are promising areas for future inquiry. Three such areas are negotiating, decisionmaking, and interpersonal perception.

A typology is presented in which two of many possible aspects of negotiating are emphasized: integrative bargaining and third-party interventions. Integrative bargaining seeks to identify outcomes that maximize the joint gains of parties to a negotiation. Among the many types of third-party inverventions, we focus on *conciliation,* which addresses the relationship between contending parties, and *mediation,* which addresses the issues to be negotiated.

Although a third-party intervention between the United States and the USSR may seem a remote possibility, sufficient merit exists in the concept, largely because of findings drawn from recent research, to warrant its further pursuit. Each superpower has an interest in maintaining its national integrity. Consequently, the conditions obtain for identifying joint gains (guaranteed national integrity). Once the superpowers have entered into a negotiation, third-party intervention, which would probably take the form of either conciliation or mediation, could establish conditions for identifying joint gains.

Two approaches in decisionmaking are presented: (1) *Decision analysis* seeks to develop strategies for decisionmaking, and (2) *behavioral decision theory* examines how individuals perceive and structure their decisionmaking environments.

Decision analysis provides guidelines for decisionmaking in complex, uncertain environments. It is a set of techniques designed to elicit superior, if not optimal, decisions that consider the entire decisionmaking environment.

Behavioral decision theory, a descriptive approach that originally emphasized simplified techniques called "heuristics," more recently has turned to concepts associated with placing a given decision in a larger

context. Two examples of such "framing" explored here are "status quo points" (psychological reference markers from which an evaluation of outcomes begins) and "packaging" (combining issues for decision together, rather than treating them separately).

The application of decision analysis to problems of nuclear conflict might be developed through simulation and gaming. Similarly, attention should be devoted to behavioral decision theory, particularly to the packaging of separate issues for negotiation.

A behavioral model derived from an interpersonal perspective has yet to be applied to international affairs. The superpowers' perspectives of the nature of their relationship occurs on two levels:

1. The direct perspective--each party's perception or experience of the issues.
2. The metaperspective--each party's perceptions of how *the other party perceives* the relationship.

The interplay between the direct perspective and the metaperspective can be discussed and understood in the following ways:

1. Comparison of the direct perspectives of both parties will determine *agreement or disagreement* on the issue(s) at hand.
2. Comparison of the metaperspective of one party with the direct perspective of the other will determine whether the party holding the metaperspective *understands or misunderstands* the relationship between the two.
3. Comparison of the direct perspective with the metaperspective of one party will determine whether that party *trusts or mistrusts* that there is agreement between itself and the other party.

This analysis of interpersonal perceptions permits several implications to be drawn about how both superpowers' perceptions might be improved. One application of the principles embodied in the concept of interpersonal perception is the technique of backtranslation, a term that refers to taking a communication translated from one language and retranslating it back into the original language. If this procedure

were to be instituted on the Hotline, for example, the message sender might be in a better position than at present to judge whether the receiver understood the message.

Additional research should emphasize simulation and gaming as a preferred means of assessing potential linkages between established behavioral principles and policymaking. Simulation and gaming make for a unique "laboratory" or "test bed" in which policy, information, crisis, and time are varied to assess the interrelationships of variables to decisionmaking outcomes. They can also provide a unique setting in which behavioral scientists, policy analysts, and policymakers can interact and that each generally accepts as worthwhile. Simulation and gaming should initially examine the decisionmaking *process* rather than validating or predicting outcomes. Simulations and games focusing on process would facilitate experiments with, for example, third-party intervenors in hypothetical superpower disputes and surrogate decisionmakers attempting to use decision analysis techniques effectively.

The United States might consider developing a resident, full-time "Red Team" of Sovietologists to simulate probable Soviet reactions in actual crisis situations. Why has this idea, implemented thus far only *ad hoc,* failed to meet its full potential?

In spite of all the training in decision analysis, principled problem solving, or any other systematic technique, there is ample evidence that major decisions will ultimately be taken somewhat intuitively. Subjective "images of conflict" may in the end play an important role in decisions that lead toward or away from nuclear war. Although it is probably impossible to project and then inculcate a "correct" image of nuclear conflict, it may be quite important to identify and test the effects of images that decisionmakers on both sides might have of nuclear war. Greater understanding of such images, of their relationship to other variables, and of their malleability or resistance to change at the moment of decision could lead to specific proposals aimed more directly at preventing a nuclear holocaust.

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From the Carnegie Corporation, Danella Schiffer responded to an earlier draft with pointed questions that helped guide our further revisions; she also provided necessary guidance on the project from Carnegie's perspective throughout its duration. Alexander L. George and Robert Jervis, consultants to Carnegie, also responded to an earlier draft of this study with incisive comments and well-directed criticisms that, to the extent possible within the time available, we have tried to accommodate in this latest version of the study.

CONTENTS

I. INTRODUCTION

The first explosion of an atomic bomb at Alamagordo in 1945 awed the scientists who created it; the second one at Hiroshima later that same year changed nations' perceptions of war and peace. Since then, the acquisition of thermonuclear weapons and their delivery systems has spawned new theories of war. Research stimulated by these developments, as well as various international crises in the nuclear era, have produced new theories of how thermonuclear war can be prevented. Since the 1950s, and especially since the Surprise Attack Conference of 1958, the United States and the USSR have sought periodically to reduce the tensions between them and to channel irreducible tensions into less catastrophic manifestations than nuclear war. International efforts in the form of test-ban treaties, nonproliferation agreements, quantitative and qualitative regulation of strategic weapons, emergency communication measures, and nuclear-weapon-free zones have arisen as a result. Nevertheless, the threat of nuclear conflict remains, and its prevention continues to be vitally important.

Questions of maintaining peace or waging war have traditionally been the province of strategy and policy analysis, but other disciplines may have knowledge that could be translated into useful responses, including the ultimate question of how to avert nuclear war. In particular, the behavioral sciences,[1] which generally address issues of decisionmaking, judgment, perception, and social influence, may offer suggestions for policy based on concrete applications drawn from those general topics. In recent years the behavioral sciences have constructed an empirical base, loosely connected to theory, that is beginning to find useful applications in policy arenas ranging from congestion in the courts to warning labels on prescription drugs to

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[1]The behavioral sciences typically include the academic disciplines of psychology, sociology, and anthropology. But, more properly, they also encompass much of management science, law, history, and international relations, as well as parts of economics and political science. It is better, perhaps, to consider the behavioral sciences as addressing human behavior on the individual and group *levels* than to attempt to delineate the field by listing substantive topics of study.

safety factors in nuclear power plant construction. Although the problem of nuclear war is a political and military problem that must ultimately be resolved in those terms, the behavioral sciences can offer insights to guide the process. This Note explores several contributions the behavioral sciences might make to reducing the risks of nuclear war.

This brief study cannot realistically cover all conceivable means of averting nuclear war suggested by every behaviorally oriented discipline or every discipline's various practitioners. We have therefore restricted the scope of inquiry here in three ways:

(1) We concentrate on new findings in social decisionmaking research, most of which appear in social or cognitive psychology, the behavioral science areas most closely associated with international relations;

(2) We orient our discussion to potential policy applications, rather than to educating the public or changing political opinions; and

(3) We define the basic problem to be prevention of nuclear war between the United States and the Soviet Union--not prevention of every possible way in which such a conflict might arise but, rather, prevention of what we acknowledge are at present the most "foreseeable" ways that nuclear war might occur.

Four questions guide subsequent discussion in this study:

- How might a nuclear war arise and how might it be prevented?
- How useful has earlier behavioral research been in contributing ideas toward preventing nuclear conflict?
- What recent research contributions from the behavioral sciences seem most relevant to preventing nuclear conflict?
- What directions for future work and study are suggested by this review?

Section II suggests an analytical framework for thinking about both the origin and the prevention of nuclear conflict. It identifies various specific ways in which nuclear war might occur, assesses them, and establishes reference points for the remaining sections. Section II also identifies critical decisionmaking or intervention points at which

deflection away from nuclear confrontation should be possible. We illustrate both the overall framework and particular points by recalling historical examples of confrontations between the superpowers that might have escalated to nuclear conflict. A scenario of escalation to nuclear war presents an intervention based on behavioral research principles that attempts to maintain peace.

Section III evaluates the historical relationship between the behavioral sciences and international relations, with particular attention to questions of nuclear war. It includes a brief survey of descriptive studies and prescriptive measures. Although previous work in this area abounds, its very abundance raises the question of why the behavioral sciences have had so little discernible effect on international policy. We consider answers to this question and possible ways of avoiding the pitfalls that have stymied earlier efforts.

In Sec. IV, we survey three areas of recent behavioral scientific research that seem especially relevant to preventing nuclear conflict: negotiating, interactive decisionmaking, and interpersonal perceptions. Within each area, we survey recent findings that may be capable of producing constructive proposals for changes in policy. Section V suggests in somewhat more detail avenues along which further research and study might proceed.

The current state of the art in the behavioral sciences is insufficiently far advanced to permit direct conversion of research findings into policy recommendations. That conclusion, although not obvious when the study began, became inescapable as the work progressed. We had assumed that direct applications of research results to the policymaking process were "out there" for the picking, if only we looked or thought hard enough, so we endeavored to find some within the time available (approximately three months), but came up wanting. We now realize that we cannot yet get there from here without additional steps. Preventing nuclear war with off-the-shelf findings is impossible without further research. Moreover, the generally low level of structured contact between researchers and policymakers would inhibit the use of applicable findings. Because of this problem, as well as our larger

conclusion, the study speaks much more directly to behavioral and policy scientists than it does to policymakers. Our concluding observations suggest how to bring these three groups together; the common endeavor suggested could produce findings more directly applicable to preventing nuclear war than any developed thus far.

II. STEPS TO WAR OR PEACE

The threat of nuclear conflict that haunts the minds of people across the globe is most often a diffuse and abstract threat (Tyler and McGraw, 1983). Before any analytic approach may be brought to bear, that threat must first be rendered more concrete. This section provides a framework for understanding with some degree of specificity both how a nuclear war might arise and how it might be prevented.

Any use of nuclear weapons promises extremely adverse consequences for both the targets of those weapons and for neighboring states and other global inhabitants. But the United States and the Soviet Union possess or control most of the nuclear weapons currently deployed throughout the world. Those held independently by the United Kingdom, France, the People's Republic of China, India, or any other potential nuclear powers pale in comparison with the enormous arsenals of the two principal adversaries. Moreover, the continuing geopolitical rivalry between the United States and the Soviet Union is particularly intense. Should it ever get out of hand, escalate to conflict, and result in substantial use of their nuclear arsenals, the consequences could prove irreversible for the planet as a whole. This study, therefore, will concentrate on the possibilities of a nuclear conflict arising between the United States and the USSR, as well as on opportunities for preventing such a development.

One framework that can be applied to the task of understanding both how a nuclear war between the superpowers could occur and how it might be prevented is that of deterrence theory. In brief, this theory suggests that one or both superpowers can, especially by virtue of their nuclear weapons, credibly pose the threat of retaliation to the other in the event of an attack. The threat of retaliation can take several forms. It can include, for example, the threat of nuclear attacks against population centers, economic assets, military forces, or political leaderships. But under a broader conception of the theory, the deterrent threat can also rest on the entire military capacity of a state, conventional as well as nuclear, and on the ability to deny an

opponent, by whatever means, its military or political objectives in the event of a conflict. As a result, the threat itself eliminates any need to engage in actual hostilities. This means that, if the current nuclear-based balance of power underlying deterrence between the United States and USSR remains sufficient on both sides, nuclear conflict itself will remain unlikely. Indeed, no nuclear weapons state has engaged in sustained direct conflict, even on the conventional level, with another such state since World War II. Hence, it follows from deterrence theory that nuclear weapons themselves help deter conflict between states and therefore help prevent nuclear war.

According to deterrence theory, nuclear war can occur if the necessary conditions for deterrence no longer obtain. For example, in its present-day application to the superpower rivalry, much of deterrence theory is based on uncertainty--on never permitting an adversary to be entirely sure whether or how one might actually use nuclear weapons. To maintain such uncertainty, a nuclear power might feel compelled from time to time to reaffirm its willingness to use nuclear weapons if need be. Under pressures of time and circumstance--in a crisis, for example--such a threat could backfire. The power being threatened could decide, mistakenly, that the threat meant war was inevitable and that, to improve its chances of survival, it must strike the first blow. Exercising a deterrent threat to insure its continued viability, therefore, could produce the very conflict the original threat was intended to deter.

The foregoing example represents only one way of understanding how a nuclear war could occur between the superpowers, but there are other ways. Reviews of the long history of policy-oriented work in this area by Frei (1982) and the Harvard Nuclear Study Group (1983) have catalogued, summarized, and estimated the likelihood of the main possibilities of a nuclear war occurring between the superpowers. According to these reviews, nuclear war could conceivably arise as a massive bolt out of the blue or as a limited attack aimed at destroying most or some key portion (e.g., land-based missiles) of an opponent's retaliatory capabilities. In both of these cases, the nuclear attack would result from "coolly calculated decisions" by one side and would involve little or no advance warning.

But, according to both Frei and the Harvard Nuclear Study Group, nuclear exchanges could also (and more probably) result from less premeditated action. For example, "in a deep and apparently irresolvable crisis, the Soviets (or the United States) might launch their nuclear weapons first with full knowledge that many of its citizens might die, but fearing far worse casualties if they allowed the other side to attack first."[1] Such an attack could occur, even in the absence of existing hostilities, through a miscalculation of what the other side is actually preparing to do; political disagreements might combine with mounting fears that conflict is inevitable to provoke one side into an eleventh-hour decision to launch a preemptive nuclear strike. Alternatively, a nuclear attack could occur as the culmination of escalatory steps in an ongoing conventional conflict involving the superpowers or their various allies or proxies. A third party armed with nuclear weapons might drag the two superpowers into a "catalytic" nuclear war. Finally, nuclear conflict could conceivably occur by accident, through loss of technical or political control over the complex systems that command and control nuclear warheads.

Both Frei and the Harvard Nuclear Study Group regard premeditated attacks and accidental wars as possible but improbable. The Harvard group considered a preemptive strike in a crisis or escalation of a conventional war to be more likely. Escalation itself could occur precipitously, through a massive attempt at nuclear preemption by either side, or it could be more carefully controlled, evolving from a conventional conflict and proceeding to limited nuclear strikes before more massive exchanges. For the Harvard group, the latter "scenario" seemed the most likely possibility in the current international circumstances, because "once American and Soviet troops met in combat, the likelihood of the use of nuclear weapons would be increased."[2] Frei agrees with the Harvard group on the importance of this last possibility, while attributing a greater likelihood than they do to escalation that involves the use of nuclear weapons by a third party.

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[1]Harvard Nuclear Study Group (1983), p. 55.
[2]Ibid., p. 56.

No one knows for sure how the first use of nuclear weapons between the United States and the USSR might actually occur. What we do know, based on an appreciation of deterrence theory, is that if and when a nuclear war occurs between the superpowers, it will be because deterrence has somehow failed. Preventing that from happening is the *sine qua non* of the theory; hence, it provides prescriptive remedies to guard against the possibilities of failure. To prevent the above escalation scenario from unfolding, for example, deterrence theory might suggest raising the military costs, nuclear as well as conventional, of any *initial* involvement by the superpowers in a low-intensity conflict with each other or with their allies or proxies.

A MODEL OF SOCIAL DECISIONMAKING

As an analytic framework for understanding how a nuclear war between the superpowers might arise, as well as for prescribing ways to prevent it from happening, deterrence theory has worked well thus far. It has contributed directly to understanding how to prevent nuclear conflict, at which task it has been remarkably successful over the years since World War II. It has also contributed to understanding how such a conflict might arise by calling attention to real or perceived imbalances in the deterrent capabilities of either side, imbalances that could make one or another of the scenarios outlined above more likely to happen. As a result of such useful contributions, deterrence theory has become the predominant framework among policymakers for analyzing questions concerning the origin and prevention of nuclear war between the superpowers.

Although deterrence theory could be explained in terms of behavioral principles, its origins do not lie in any direct application of behavioral research. The theorists who have been associated with the development of deterrence theory (e.g., Bernard Brodie, Herman Kahn, Thomas Schelling, Albert Wohlstetter) did not invoke the theories or empirical data bases of the behavioral sciences. Behavioral scientists and their research could be invoked, however, both in support and in criticism of the deterrence model. On one hand, considerable evidence from experimental, two-person strategic games shows that strong players

will exploit weak players when given the opportunity to do so. On the other hand, equally good evidence from the same types of games shows that two strongly armed players do not fare as well, either individually or jointly, as two players without the capacity to threaten each other (Rubin and Brown, 1975).

In this study, we shall examine the possibility of nuclear confrontation between the superpowers from a vantage point that permits a combination of behavioral and political theories, several areas of current behavioral research, and the perspective of deterrence theory as well. That vantage point might be termed social decisionmaking, or the study of decisionmaking behavior in interactive social situations.[3]

As an alternative framework for understanding how a nuclear war between the United States and the USSR might arise, the social decisionmaking model that we shall use here analyzes such an occurrence in terms of a series of interactive decisions taken by the two superpowers. Separate but related decisions taken by both the United States and the Soviet Union can cumulatively create a causal chain of events, or step-by-step path of decisionmaking, that can result in nuclear war. To hark back to deterrence theory, we could say that at some step along the decisionmaking path, one power can *decide* that it is no longer deterred from nuclear conflict. (It might believe the other power is no longer deterred, or that the stakes involved in a controversy between the two have risen so high as to make concession intolerable.) As a result, active, indeed interactive, *decisions*--not simply some passive "failure of deterrence"--would produce a nuclear war, which then would represent the culmination of all preceding steps along the path.

This decisionmaking path can also be understood, explained, and depicted in terms of important decisionmaking points between the steps along the path. Taken together, both the steps and the decision points

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[3]For reasons developed in Sec. IV, social decisionmaking appears to be an appropriate model for this study. This is not to denigrate alternative formulations. In terms of Intriligator's (1982) categorization of the various analytic approaches available to the study of conflict, social decisionmaking encompasses decision theory, game theory, and bargaining theory, all considered in the context of a world where misperception and misunderstanding of other actors' positions occur.

help explain, for example, how an inadvertent or "unintentional" nuclear war might result from conscious decisions made just before the last step along the path, but without any intention to arrive at that last step when the first steps down the path were taken. By displaying the intervals between the steps as decisionmaking points, the social decisionmaking model indicates how a nuclear war might be prevented as well as how it might begin. If different decisions are taken at various points between the steps, perhaps as a result of a successful intervention at one of these points, the path toward nuclear war could be altered and such a conflict prevented.

Figure 1 depicts such a decision tree. It derives from an illustration by Lebow (1981) that portrays the steps by which a conflict of interest between nations escalates to war.[4] Between each of the steps (the boxes) is a potential decision point at which a successful intervention (the triangles) could alter the direction (the arrows) of events. Lebow's original format has been altered to suggest possible alternatives at each intervention point.

An immediate consequence of adopting this depiction of the origins of a nuclear war is that the ways one could intervene to prevent that war might be far-removed from the events directly precipitating it (Fischhoff, 1983). A successful intervention that deflects the superpowers away from the path toward war and onto an alternative path could occur before hostility becomes manifested in tensions between them or before specific conflicts of interest result in crises (as well as after a crisis has arisen). Interventions planned to prevent nuclear war may be more likely to do so the farther removed they are from war planning or crisis management.

Intervening at some point farther removed from the actual outbreak of combat has both advantages and disadvantages. The advantages are well-represented by the folk wisdom that "an ounce of prevention is worth a pound of cure." The disadvantages are less amenable to such terse encapsulation, but they include the possibility of unintended side effects from interventions, failure to consider that the intervention might place the world on a different path to war rather than on a path

[4]The stages in Fig. 1 derive from Lebow, but the general concept of stages on the path to war is not unique to him (e.g., Stoll, 1983).

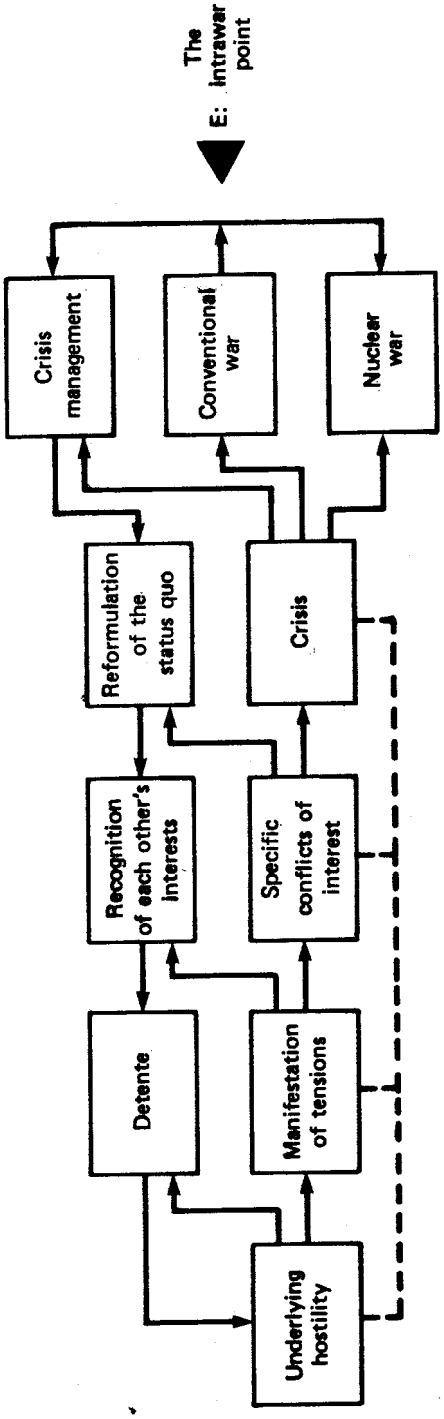

Fig. 1 – Decisionmaking/intervention points in the decision tree leading to nuclear war

to peace, and even the possibility that the ounce of prevention might be more costly than the pound of cure. Therefore, before formally advocating the theory that earlier is always better than later intervention, we would have to undertake a more extensive analysis of the potential disincentives and drawbacks.

The starting point for our decision tree in Fig. 1 is the assumption that an underlying hostility exists between the two superpowers. But that is not to suggest that the United States and the Soviet Union cannot or do not cooperate when mutual self-interest directs that they do so. Nor is the assumption of underlying hostility intended to suggest that successful interventions, or an altered pattern of decisionmaking achieved by some other means, cannot conceivably reduce that hostility. However, the competitive aspects of Soviet-American relations are primary and their fundamental antagonism is difficult to alter by direct intervention at the hostility point (triangle A). If left unchecked at later intervention/decisionmaking points along the path, the hostility could lead to tensions, to specific conflicts of interest, to international crises, and ultimately to nuclear war.

Lebow describes the unchecked progression of these various steps down the path to war as follows:

> Underlying tensions give rise to a variety of manifestations, among them arms races, alliances, and competition for influence. These visible manifestations of tension are likely to aggravate the clash between the protagonists in particular arenas of conflict. The resulting confrontations can lead to war, although war can also come about in the absence of crisis.

He also suggests that the "progression from underlying tension to crisis and possible war can be described as an amplifying feedback network" (represented by the dotted lines in Fig. 1). This means that each new step along the path tends to magnify the effect of preceding steps. In a Soviet-American crisis, for example, the previous level of hostility between the superpowers intensifies through a process of reinforcement.

Feedback need not always increase tension. As Lebow observes,

> An agreement to limit armaments or a negotiated settlement of an outstanding territorial dispute, to cite just two tension-reducing acts, can generate "negative" feedback in the sense that it diminishes mutual perceptions of underlying tensions and thereby dampens the manifestations of these tensions. Depending upon their course and outcome, international crises can accordingly intensify or diminish the level of underlying tension and hostility.[5]

Figure 1 depicts the possibility of such "negative," or stabilizing, feedback in the form of generalized alternatives (e.g., detente, recognition of the other's interests, reformulation of the status quo, crisis management) to the war-directed steps appearing below them.

There already are some arrangements for managing or limiting the competitiveness of American-Soviet relations and deflecting them away from war. These range from formal international mechanisms of varying effectiveness to bilateral arrangements between the superpowers.[6] The first category includes such multilateral institutions as the United Nations Organization set up in 1945 or--much earlier and less well-known--the 1907 Hague Convention for Peaceful Resolution of Disputes, to which both the United States and the USSR are party. This category would also include the more recent Nuclear Non-Proliferation Treaty of 1968, as well as the Seabed Treaty of 1971, which prohibits the emplacement of nuclear weapons and other weapons of mass destruction on the seabed, on the ocean floor, and in the subsoil.

The second category encompasses bilateral arrangements that could help reduce the risks of nuclear war between the superpowers. This category includes the Standing Consultative Commission, established in conjunction with the SALT I agreement of 1972 to deal with treaty compliance and other disputed issues regarding strategic arms, as well as the "Hotline," or direct communications link, between Moscow and Washington initiated in 1963 and modernized in the 1970s as a possible

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[5]Lebow (1981), p. 336.

[6]For a thorough review of the various agreements involved, see Frei (1982), pp. 177-217.

means of averting war. This category also includes the Soviet-American agreement on the Prevention of Incidents on the High Seas (1972) and three other agreements to help prevent tensions between the two countries from leading unintentionally to nuclear war: the "Accidents Measures" Agreement to Reduce the Risk of Nuclear War, the 1972 Basic Principles Agreement, and the 1973 Prevention of Nuclear War Agreement.

The last four agreements are examples of how the United States and the Soviet Union initiated numerous efforts to improve their mutual relationships in the early 1970s that became known collectively as "detente." Viewed in terms of Fig. 1 and the model of social decisionmaking that informs it, those agreements represent decisions reached interactively by both countries at the tension point (triangle B) on the potential path to nuclear war. The net effect of these and other similar decisions was stabilizing feedback--a decrease of tensions that temporarily reduced the possibility of nuclear war by directing interactive superpower decisionmaking away from the path toward it. More specifically, what happened in the early 1970s was that instead of tensions leading to further specific conflicts of interest, as they had in the 1950s and 1960s, through a process of interactive decisionmaking they were channeled instead into greater recognition by both superpowers of each other's interests, which in turn produced detente and lowered tensions in their relationships.

In the early 1980s, most of those earlier decisionmaking efforts have given way to a greater manifestation of tensions, particularly in the wake of events in Afghanistan, Poland, the Middle East, and Central America, which have begun to create the kind of amplifying feedback that exacerbates underlying hostilities and threatens to direct superpower decisionmaking into taking the next step down the path toward war. Heightened tensions, however, need not lead directly to specific conflicts of interest (the next step in Fig. 1). Throughout the early Cold War era, increasing tensions generally did lead in this direction. Specific conflicts of interest usually arose in Europe, primarily over the ultimate status of Berlin.

More recently, however, even unsettling events in Poland during the early 1980s have not caused specific conflicts of interest between the superpowers over Berlin. The current lack of such conflicts might be

attributable to a successful earlier intervention, the 1971 Quadripartite Agreement on the status of Berlin. Concurrent with related diplomatic achievements under West Germany's policy of "Ostpolitik" during the detente era, this agreement helped reformulate a previously unacceptable status quo, provided formal recognition by both superpowers of each other's interests in the still-divided city, and acknowledged both the cooperative and competitive aspects of their relationship in that region. Not even the 1973 Middle East War, which saw the United States declare a nuclear alert after the Soviets reportedly deployed nuclear weapons to Egypt, nor the Polish crisis of the early 1980s in Europe itself disturbed the new status quo in Europe over Berlin.

Similarly, specific conflicts of interest do not inevitably lead to crises, nor do crises automatically result in wars. Successful interventions or decisionmaking at the conflict-of-interest point or the crisis point (triangles C and D) can produce the necessary stabilizing feedback that diverts states from taking further steps down the path toward war. For example, it can be argued that British intervention in the founding of Zimbabwe prevented not only further civil war there but also a crisis throughout all of Southern Africa that might have involved the superpowers. Instead, the British initiated a reformulation of the status quo in that region. It is not complete--Angola and Namibia are still being contested, and the future of the Union of South Africa remains a big question mark--but for the present, there is no major East-West crisis in Southern Africa and there is some mutual recognition of each other's interests.

We distinguish in Fig. 1 between crises and direct confrontations (conventional wars) that fall short of nuclear war. A "crisis" is loosely defined here as a period of heightened tension, in an environment constrained by time limits, which potentially involves the engagement of a superpower with its counterpart or with an ally of that main adversary. By this definition, isolated incidents such as the downing of a plane or the sinking of a ship do not necessarily constitute a crisis, although such incidents may provoke a crisis, depending on how the aggrieved party responds. Similarly, the definition differentiates between a crisis and a direct military clash

between the superpowers. The latter is viewed here as one potential outcome of a crisis, even though *any* direct military clash between the superpowers would itself constitute a major crisis in international relations. The steps depicted in Fig. 1 are broadly representative, not precise. Just as an international crisis can escalate directly to nuclear war, bypassing any non-nuclear steps, further crises can arise within the context of a conventional war, or even conceivably of a nuclear war itself, whenever further escalation begins to loom as a compelling option.

Both the 1973 Middle East crisis and the Cuban missile crisis of 1962 exemplify conflicts of interest between the United States and the USSR that escalated to a crisis but did not take the next step to war. Instead, the two countries successfully managed both crises, sparing themselves a clash of arms and producing a reformulation of the status quo. The United States supplanted the Soviet Union as the dominant power with respect both to Egypt and to a future settlement between Egypt and Israel in the Middle East. Cuba received certain guarantees of nonintervention from the United States, and the Soviet Union agreed to refrain from stationing any offensive nuclear weapons in Cuba. In terms of Fig. 1, successful decisionmaking at the crisis point in both cases averted further steps toward war. According to Lebow, the after-effects of the Cuban crisis were even wider ranging:

> It marked the most dangerous point of the Cold War and was followed by mutual efforts to reduce the tension characterizing relations between the superpowers. The Cuban confrontation did not really resolve any serious political issue, but it did have important shock value. By raising a very real prospect of nuclear war for the first time, it led both the United States and the Soviet Union to see the need for some kind of accommodation. . . . There can be no question that Cuba was an important catalyst of detente.[7]

Successful crisis management, and the stabilizing feedback resulting from it, produced a detour from the path toward war and a change in direction that extended all the way back to a moderation of the underlying hostilities between the superpowers.

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[7]Lebow (1981), pp. 336-337.

Although the United States and the USSR have not directly engaged each other's forces in combat during the postwar era, and thus have yet to engage in interactive decisionmaking at the intrawar point (triangle E), the United States has battled Soviet proxies in Korea and Vietnam. Moreover, both superpowers have simultaneously supplied materials to warring third-party supporters. Thus far, none of these cases has escalated to nuclear war or even a direct clash between the superpowers. The Korean conflict and the Vietnam war were confined to the peninsulas where they arose; indeed, the latter part of the Vietnam War coincided with the heyday of Soviet-American detente.

Given the superpowers' ability to resolve crises and avoid direct military clashes between themselves, it is possible to conclude that a nuclear and perhaps even a conventional war between the superpowers is highly unlikely--that it is already adequately prevented. According to deterrence theory, the maintenance of a balance of (military) power has prevented any clashes thus far; provided this balance is adequately preserved, future clashes are equally unlikely. Experience in gaming tends to support this contention. An overview of the concept of Rand's Strategic Assessment Center notes, for example, that "free-play teams exhibit extreme reluctance (amounting to refusal) to initiate nuclear conflict."[8] The crisis point (triangle D) has served, like the hangman's noose, to concentrate the minds of decisionmakers on avoiding direct military clashes (witness the Cuban and Middle East crises). One is tempted to conclude that it will continue to do so in the future, sobering leaders up to the enormous risks involved in any further escalation.[9]

At best such a conclusion is overly optimistic. That a war between the superpowers has yet to occur is no guarantee that it will never happen. Lebow (1981) documents many cases where unexpected escalation to war did occur, despite awesome conventional deterrents (e.g., the alliance structures before World War I). Lebow's examples of further escalation, however, either are drawn from the non-nuclear period or do

[8]Graubard and Builder (1980), p. 7.

[9]See, for example, Levi (1981) and Waltz (1981), for further arguments in this same vein.

not involve the nuclear superpowers. More important, perhaps, is that deterrence prevails only as a consequence of a complex set of necessary conditions--e.g., the maintenance of a certain balance of military forces. These conditions may come to be perceived inaccurately or changes in technology may cause the conditions to change, reducing deterrence and increasing the risk of a nuclear war between two highly armed antagonists as a result.

The behavioral sciences provide a basis for distrusting the conclusion that a nuclear war between the superpowers is already adequately prevented. Empirical studies in cognitive psychology suggest that decisionmakers may not always behave rationally, as deterrence theory presumes, and might actually escalate beyond a crisis to nuclear war for reasons that appear irrational or illogical (Kahneman, Slovic, and Tversky, 1982). Studies of behavior in experimental games suggest that, even if both sides are acting rationally, they may misperceive the situation and in essence make the right move, but for the wrong game (e.g., Kelley and Thibaut, 1978). Models of individual and small group dysfunction from psychiatry offer a possible fatal irony: Both sides may act rationally and both sides may correctly perceive the situation, but in the mistaken belief that the other side misperceives the situation, one side may take a protective action that results in a war that nobody wanted (e.g., Watzlawick, Weakland, and Fisch, 1974).

A HYPOTHETICAL CASE IN POINT: A NEW CUBAN CRISIS

Although we have had the good fortune to date not to experience a nuclear war, there are several ways that a crisis between the superpowers could escalate to that unfortunate outcome, as Frei and the Harvard Group have indicated. What follows below is a scenario that suggests, in much greater detail, (1) how a crisis might actually escalate to a nuclear war that nobody really wants and (2) how an intervention based on some behavioral principles at the crisis point (triangle D in Fig. 1) might help avert the war. Both the escalation to war and the preventive intervention are speculative; we believe neither that the crisis presented is imminent nor that the solution proposed is guaranteed to work. We present this scenario simply as a heuristic device to render more concrete and intelligible the behavioral points that it helps us make.

There has been a long-standing conflict of interest between the superpowers in the Central American and Caribbean region as well as in Europe. Both regions are actively tense at present and have been the scene of earlier crises. We therefore posit that a crisis arises again over Cuba, and we assume that the United States and the Soviet Union arrive at the crisis through a series of escalatory steps of the kind depicted in our model (Fig. 1). We also assume that this new crisis arises sometime in the latter part of the 1980s and that both the United States and Soviet Union have fairly new heads of state, who have not yet met face to face.

More specifically, the crisis begins with a U.S. discovery that the USSR has deployed in Cuba Fencer fighter-bombers capable of attacking targets in North, Central, and South America with nuclear as well as conventional weapons. Whether nuclear weapons are actually present is unclear, but the Soviets refuse to state that they are not. The Soviets claim that these forces are not a violation of the Soviet-American agreement ending the 1962 missile crisis. Such a step on their part would not be entirely without precedent. Over the years, the Soviets have interpreted the agreement liberally and attempted to stretch its provisions. This time, however, because of the direct threat posed by land-based, nuclear-capable Soviet offensive forces in such proximity to the continental United States, American leaders decide that the presence of Moscow's Fencers is intolerable and must be eliminated. Drawing upon the recollected experience of the previous Soviet-American crisis over Cuba, Washington once again institutes a naval blockade of the island and demands withdrawal of the offensive Soviet weaponry in exchange for removal of the blockade.

More than 20 years have passed, however, since the last such crisis over Cuba, and during those years the military balance between the two countries has changed considerably. In particular, the Soviet Union is now at least the equivalent of the United States in strategic nuclear forces. This time, therefore, the Soviet Union decides not to accommodate the United States by withdrawing its aircraft from Cuba (indeed, Moscow's current nuclear parity helped make possible the decision to place the weapons there in the first place). Instead, the

Soviets respond by blockading West Berlin and demanding a withdrawal of Washington's blockade around Cuba in exchange for the removal of Moscow's blockade of West Berlin. Each event in this symmetrical situation has an historical precedent, although neither has been connected to the other so directly before.

At this point in the crisis, deterrence still obtains. U.S. and Soviet leaders are communicating with each other through the Hotline and their embassies. Each is resupplying its outpost by air; meanwhile, the U.S. blockade of Cuba by sea and the Soviet blockade of Berlin by land are both being maintained and observed. The existing nuclear balance and the theory of deterrence, as outlined above, would dictate some resolution of the crisis at this point. But the options, seen from the American point of view, are all bad. The U.S. political climate is such that no leader could permit medium-range bombers in Cuba and hope to maintain leadership. The image of Kennedy's stand in 1962 is still so prominent that any President permitting such a suspected Soviet nuclear capability in Cuba might even be forced to resign from office. The alternative--in effect, maintaining the status quo of double blockades--is also unacceptable, primarily because the Soviet Fencers are already deployed in Cuba and the United States will not allow them to remain there indefinitely.

Unable to compromise by removing either weapons or blockades or simply to suffer both in place, the United States announces its intention to destroy the Soviet aircraft in Cuba, using conventional forces, if they are not removed within two weeks. The Soviets counter by announcing that they will close off the West's air routes to Berlin, thus completely isolating the city, if the United States carries out its threat. The United States counters with an additional threat of its own: if the USSR cuts off the air routes to Berlin, the United States not only will bomb Cuba but will invade it to prevent Cuba from ever again being used as a base for threatening the continental United States and the Western hemisphere. The Soviets counter this move by threatening to occupy West Berlin should Cuba be attacked.

On the fateful day, despite additional discussions and posturing by both sides aimed at convincing the other of the strength of its ultimate resolve, as well as of the need to make concessions, neither side has

retreated from its positions. The United States attacks the Soviet Fencer bases in Cuba as promised; the USSR retaliates by downing Western aircraft attempting to fly into West Berlin. Furthermore, the United States prepares to mount an invasion of Cuba, while gearing up its own and allied air forces in Europe to contest the Soviets' closure of the air corridors into West Berlin. At this point, each side believes that it will prevail: The Americans feel confident that they can occupy Cuba; the Soviets believe that they can successfully cut off West Berlin from the rest of Western Europe and overwhelm it. Moreover, both sides hold implicit views that, even if they engage in combat with each other, they can limit such conflict to Cuba and Berlin and prevent it from escalating to nuclear war.

A number of unexpected developments occur, however. Backed by the USSR's combat brigade and other military assets stationed in Cuba and reinforced by such additional forces as the Soviets manage to fly in, Cuba's resistance is stiffer than expected and the military struggle for control of the island is prolonged. Surface-to-air missiles in Cuba down more American aircraft than U.S. military planners expected. Similarly, U.S. and NATO military resistance both in the air and on the ground to a Soviet takeover of West Berlin is more successful and lasts longer than might have been expected.

The next step in the escalation takes place in Europe, where Soviet and Warsaw Pact fighter planes are engaged in heavy aerial combat with Western forces trying to reopen the air corridors to West Berlin and resupply the besieged city. The combat spills over into Western Europe. Perhaps because it is losing too many planes in the air over Warsaw Pact territory, the USSR launches counterstrikes against the NATO air bases from which the allied aircraft operate. NATO then counterstrikes against Warsaw Pact bases in Eastern Europe, and the conflict escalates further. Either the West uses nuclear weapons to stop the advance of the Red Army or the Soviets use nuclear weapons in a preemptive strike against Western theater-nuclear assets. This in turn leads to an exchange of strategic-nuclear strikes targeted on the American and Soviet homelands.

Obviously, many variables enter into the development of the foregoing scenario. Some of these variables are political, some military, some geostrategic, but some are indisputably behavioral. All influence the interactive decisionmaking that must occur if the scenario is to unfold as described. Indeed, behavioral factors played a crucial role in that development. The implicit assumption by both the United States and the USSR, for example, that they could keep their clashes over Cuba and Berlin limited, even under the stress and pressures of combat, involved an important behavioral variable--the perceptions that both sides have of each other as escalation occurs--that could prove to be critical for controlling escalation once the initial move from crisis to combat is underway.

Need the escalation to nuclear strikes in our scenario have happened? Where might an effective intervention point have been that could have prevented the escalation to nuclear war? One possible intervention point might have arisen in the two-week period between the U.S. threat to destroy the Soviet nuclear weapons in Cuba and the time when that threat and those subsequent to it were actually carried out. Our hypothetical intervention begins within this two-week interval.

When the Americans and Soviets announced their competing threats, the remainder of the world was held hostage, in effect, fearful of the impending escalation, but powerless to do anything about it. The Secretary General of the United Nations, in a "nothing-to-lose" move, requested that the leaders of both superpowers meet with her in Geneva in a last-minute attempt to avert active hostilities. Perhaps because both leaders were new to their jobs and hesitant to be responsible for starting a nuclear war, both agreed. Thus, two days into the two-week period, the American President, accompanied by the U.S. Secretaries of State and Defense, met in Geneva with the Soviet leader and his foreign and defense ministers.

In the first three days of this summit, the heads of state, meeting for the first time, came to realize that neither of them really wanted the threatened escalation. But both sides also saw that the situation did not permit any compromise solutions; either the Fencer fighter-bombers stayed, or they were removed. Because compromise in the

traditional sense was unlikely and time was short, both sides agreed that, rather than each presenting proposals to the other demanding concessions in exchange for concessions, a "single-script" technique (Fisher, 1981; Fisher and Ury, 1981) would be used, whereby the Secretary General would create draft agreements that both sides would critique in open session. The Secretary General, arguing the need for time to fully understand each side's position, won a small but important concession from both that the deadline day would be extended another two weeks.

The Secretary General's approach involved probing underlying bases of each side's position to see if she could, in effect, suggest a reformulation of the status quo that would protect the primary interests of both sides. Talks with both leaders convinced her, at least, that the primary motivation of each side was reactive in nature. The United States was arguing that land-based aircraft in Cuba would hold the Southeastern part of the country and large portions of Latin America hostage to Soviet attack, both conventional and nuclear; the Soviets were seeking to offset an expanding U.S. military presence in the Caribbean basin. Secondary motivations were the maintenance of an image of reliability both at home and among allies and a striving for consistency in policy, especially as both leaders were at the beginning of their tenures in office.

Based on this appraisal of the situation, the Secretary General offered a radical proposal: The Soviets should withdraw all of their military forces from Cuba. In return, the United States would remove its military forces from West Berlin. Each side would be permitted to keep its diplomatic, economic, and political relationships with Cuba and West Berlin, and British and French military forces could continue to stay in Berlin. But a mutual military withdrawal by the superpowers would occur. As expected, the first reaction was incredulity, but the Secretary General persevered and went step by step with the two leaders through their objections.

- The first objection was that neither side could give up its military support of an ally of long standing, whose political importance was for decades a constant factor in both sides' policymaking.

However, the Secretary General argued, if the escalation to actual combat were to proceed as threatened, the most likely outcome for both sides, even from the perspectives of their own military planners, was that the Americans would prevail in Cuba and physically occupy the island and the Soviets would correspondingly occupy West Berlin. Therefore, she argued, a mutual withdrawal that both short-circuited the need for a military encounter and preserved each superpower's non-military presence in each place was preferable to both sides having to sustain the personal, political, military, and economic losses of battle.

- The second objection, registered by the Soviets, was that acceptance of the Secretary General's proposal might result in the Soviet loss of Cuba, should the Castro regime be overthrown.

The Secretary General acknowledged the Soviet point but argued that the power realities involved in prospective solutions to the current crisis simply did not afford a non-escalatory solution to this problem. She again pointed out that the outcome of either conventional or nuclear war in this crisis most likely included the loss of Cuba to the Soviets anyway; Moscow would simply have to take the risk.

- The third objection was that the people centrally involved--Cubans and West Berliners--would not want the change.

The response here was that, although many people might not want the change, even fewer wanted the impending military contest between the superpowers to be fought in their own homes.

- The fourth objection involved a loss of trust by the allies of the superpowers: Castro had long been a bastion of third-world support for the Soviets, and West Berlin was the image *par excellence* of U.S. resistance to Soviet expansionism. If the commitments to these sacred allies were compromised, would any country trust a commitment by a superpower?

The Secretary General's response here was delicately phrased. She said, in effect, that because both superpowers were making a concession at the same time, neither was giving in to the threats made by the other. Instead, both were making serious concessions to demonstrate their intentions of protecting their allies from the terrible costs of nuclear war. In this reframing of the issues involved in the crisis, each side would make a very serious concession as a demonstration of its support for and often-expressed commitment to peace without dishonor.

Although we could conclude the scenario at this point by positing that the Secretary General had persuaded the American and Soviet leaders and they ultimately agreed to her mediated solution, we are not confident that this would be the outcome. Startled by the severity of the Secretary General's trade, perhaps the superpowers or the Secretary General herself, by proposing another, less-sweeping "single-script," could come up with a simpler weapons-for-weapons trade that would have eliminated the Fencers from Cuba. But we cannot say for sure. Too many factors have not been specifically considered in this scenario. These include the personalities of both leaders as well as that of the Secretary General, the latter's understanding of the perspectives of the two leaders (which may be in error, even in this case), the makeup of the councils advising the leaders, the actual course of the ongoing blockades, and perhaps even the behavior of countries not centrally involved in the dispute--Israel, Syria, South Africa, or Vietnam--who might seize on the concentration of attention away from their parts of the world to strengthen their own positions.

What we can say is that, although the Secretary General's intervention and proposal are radical, they do have some grounding in behavioral principles. Neither may be sufficient to prevent any and all combat from occurring. It is entirely possible that once committed to their courses of action in the crisis postulated, both superpowers would still rather fight; hence, the crisis would escalate to combat. What one can hope, however, is that the intervention might at least help prevent the crisis from escalating beyond conventional combat to all-out nuclear war. Both sides may come to realize a shared interest in keeping any combat between them limited. Although that mutual interest is implicit on both sides, it might not have been made explicit between

them, or otherwise have been realized by each to be true for the other as well, without the Secretary General's intervention. Such a realization may itself help keep the combat limited throughout the confusion of ensuing clashes, once they have begun.

Although the heart of the Secretary General's intervention was a proposed political-military solution, we can point to several instances in that intervention where recent work within the behavioral sciences made a contribution. Her decision to mediate in the first place was in part based on behavioral principles; she judged correctly that the parties would be responsive to such efforts and chose a style of third-party intervention that was appropriate to the crisis. A major reason for having a face-to-face meeting was that the two leaders, not yet familiar with each other, would have an opportunity to understand each other's positions more completely and therefore see the danger of continuing along their original paths. The "single-script" bargaining technique was developed by a behaviorally based, multidisciplinary effort at the Harvard Law School. Moreover, behavioral principals of decision analysis underlay the Secretary General's observation that most of the probable outcomes of a war resulting from this crisis would include a Soviet defeat in Cuba and an American defeat in West Berlin; such principles could have helped her observe that the true comparison points for alternative outcomes were not "losing vs. not losing," but rather what and how much to exchange. Behavioral principles were also central to the Secretary General's reframing of the meaning of the agreement such that neither side would be showing weakness in the face of threats from the other.

If the behavioral principles sketched above were known to be directly applicable to international relations, then we would have more confidence in the success of our hypothetical intervention. But, anticipating a point we shall make later, the relevance of any behavioral principle to active international policymaking has yet to be proven and will have to await further interdisciplinary, hypothesis-oriented research. Nevertheless, the behavioral sciences promise to be relevant to problems of nuclear war in at least two senses. First, they can help us better understand how behavioral variables could influence decisions leading to a nuclear war--those variables involved in a

superpower escalation beyond crisis, as well as those involved in the various decisionmaking steps (of Fig. 1) that lead to crisis. Second, the behavioral sciences can help improve our understanding of how a nuclear war might best be prevented, not only in a crisis of the kind described above, but also at earlier decisionmaking/intervention points between the steps on the path toward crisis.

III. THE BEHAVIORAL SCIENCES AND NUCLEAR WAR

The behavioral sciences have long been employed to study international politics. And politics have influenced the behavioral sciences in turn. For example, horrified by World War I, Sigmund Freud reconsidered his theory of personality and posited a death instinct (thanatos) to accompany the life instinct (eros); in no other way could he comprehend the slaughter of that conflict.

More recently, behavioral scientists have attempted to apply their professional knowledge to the alleviation of the threats posed by a nuclear war. For example, at the 1983 American Psychological Association Convention,[1] several sessions addressed the prevention of nuclear war. Some titles of papers and symposia at these sessions were:

- State of the Art: Social Science Research and Social Advocacy
- Toward the Cause of Peace: What Can Psychology Contribute?
- Public Opinion and Nuclear War
- Psychologists in Response to the Nuclear Threat
- Avoiding World War III: Military, Psychological, and Political Perspectives
- Nuclear Holocaust, Peace Efforts, and International Developments in Psychology
- Nuclear War Threat and the Next Generation: Psychology's Responsibility

An examination of these titles demonstrates that the involvement of the behavioral sciences in the question of nuclear war occurs on different levels. For some behavioral scientists, the involvement is based on moral conviction rather than on the findings of their

[1]The other behavioral scientific disciplines have not been silent; for example, sessions at the annual meetings of the American Sociological Association and the American Anthropological Association have addressed the question of nuclear war, and a three-day "Pre-Congress Symposium on Peace and War" preceded the August 1983 International Congress of Anthropological and Ethnological Sciences.

profession. For these social advocates, the ethical principles that are part and parcel of their profession require them to make a political statement within their professional roles. Although these behavioral scientists might be influential as individuals, they do not attempt to use their professional knowledge to prevent nuclear war, and so fall outside of our present scope.[2]

Other politically committed individuals, not necessarily behavioral scientists themselves, see the behavioral sciences as offering useful ways to influence public opinion and political leaders to adopt their viewpoints. For these individuals, the behavioral sciences offer means to achieve policies that are (typically) formulated independently from behavioral principles. For example, Klineberg (1983) presented an analysis of the dimensions of public opinion that are relevant to nuclear war, including:

- How the citizens of one nation perceive citizens of other nations.
- How political concepts such as the "window of vulnerability" or "deterrence" are themselves psychological in nature, in the sense that they are defined in terms of people's senses of security.
- How the perceived threat of world annihilation posed by nuclear arms introduces questions of personal anxiety not felt by earlier generations.

Klineberg concluded that the best way to affect public policy is to affect public opinion by having psychologists become politically active.[3] Such efforts to alter public opinion, extensive and important

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[2]Indeed, some of these behavioral scientists hold that the present primitive state of the behavioral sciences in conjunction with the strong forces that control modern societies preclude any effective contribution from the behavioral sciences to any problem of governmental policy.

[3]The effect of public opinion in societies in which public officials are not subject to public approval or where diversity of opinion is not readily available for public consumption is problematic. Even in purportedly "free" societies in that regard, the forces controlling opinions may not themselves be amenable to control.

as they might be in their own right, do not use behavioral principles to develop policy and are therefore not directly germane to the present task.

A third group of individuals includes those who have attempted to use behavioral principles to understand how nations might find themselves at risk of entering into a nuclear war and how that risk might be averted. This use of behavioral science has manifested itself in two interrelated areas: descriptive studies of international politics based on behavioral principles and prescriptive policy recommendations that are at least in part founded on behavioral considerations. In the remainder of this section, we will sample from the many descriptive and prescriptive attempts thus far to apply behavioral principles to the problems of the nuclear age.

DESCRIPTIVE STUDIES BASED ON BEHAVIORAL SCIENTIFIC PRINCIPLES

Fortunately, with but one exception, there have not been any nuclear wars to be described in behavioral or any other terms. Although several authors have written about how the personalities of the men who decided to use the atomic bomb in World War II may have influenced that decision and how these men were influenced by the consequences of that decision (Herken, 1980; Mandelbaum, 1981), no behavioral analyses of that single instance have had any major effect on either the academic or policy communities. But there have been major recent contributions utilizing the behavioral sciences in the study of international relations, particularly in the examination of the origins and complexities of international crises.

Decisionmaking theory, organizational theory, environmental theory, and personal attribution theory have each been used to explain the dynamics of international relations (e.g., de Rivera, 1968; Hermann, 1972; Holsti, 1972; Kelman, 1965; Rogers, 1978; Snyder and Diesing, 1977; Sperrazzo, 1965; Sprout and Sprout, 1956; P. Williams, 1976; R. Williams, 1981), and the behavioral approach to the description of international crises has appeared in three general forms. The first is the case study, which consists of an almost minute-by-minute account of

the crisis, the specific decisions made, and an analysis of the psychological factors influencing those decisions (Abel, 1966; Allison, 1971; Paige, 1968). Allison (1971), for example, combines the rational actor, bureaucratic political, and organizational models to help explain decisionmaking during the Cuban missile crisis.

The second form is the case survey, or a comparison of various crises to find commonalities in the behavior of the decisionmakers that are explicable by behavioral theories (George, 1983; Janis, 1982; Janis and Mann, 1977; Jervis, 1976; Lebow, 1981). For example, Janis (1982) surveys several cases, including the Korean and Cuban missile crises. From these he identifies a particular phenomenon in foreign policy decisionmaking that he calls "groupthink," referring to the deterioration of mental efficiency that results from in-group pressure.

The third form is a psychologically oriented biography of a major national leader, which seeks to understand how that leader came to prominence and why he made the world-changing choices he made. This approach is typified by the field of "psychohistory," with origins in Freudian and post-Freudian psychoanalytic theory (Lifton, 1974). Perhaps the best known works of this type are Erikson's (1958, 1969, 1974) books on Martin Luther, Mohandas Gandhi, and Thomas Jefferson. Two examples from the many applications of psychological history to international policymaking might be noted. Langer (1978) analyzed the mind of Hitler to better understand World War II; this work had its origins in intelligence work during that war. Tucker (1973) studied Stalin in order to better understand the course of the USSR after the death of Lenin.

Jointly, these approaches produce a greater understanding of how crises evolve by describing their inner workings and pointing to common, recurring problems. But, taken without further analysis, they fall short of providing guidance for the future. As generals are prepared to fight the last war, diplomats are ready to deal with the last crisis (Jervis, 1976). In addition, any retrospective analysis may provide only one of several possible explanations that can account for past events. Behavioral models perhaps have an advantage here in that they interpret human behavior more generally and with less dependence on context than models derived from other disciplines; thus they may be more open to testing on a wider variety of types of events.

PRESCRIPTIONS FROM THE BEHAVIORAL SCIENCES

For the behavioral sciences as well as for other analytic disciplines, a truer test of the efficacy of any model is how well it can prescribe, if not exactly predict, useful ways of dealing with the future. To the extent that policymakers can adapt the findings of behavioral models more readily to their own immediate circumstances, those findings could be of considerable value. Through the years, several prescriptive measures have been advanced that are based on behavioral principles designed to improve decisionmaking in international relations. These measures vary considerably in their quality, specificity, and direct derivation from behavioral principles. Table 1 presents a nonevaluative compendium of some of the recently published measures, organized according to whether they relate to individual behavior, small group behavior, or national policy.

The behavioral basis of the recommendations in Table 1 varies with the level of analysis. Recommendations on the *individual* level grow largely from cognitive psychology and considerations of how "psycho-logic" may differ from formal logic. Among the major research bases cited in support of these recommendations are studies of individual economic decisionmaking behavior, belief consistency in the face of conflicting evidence, and the influence of attitudes on beliefs. Recommendations on the *group* level are largely based on research growing out of the group dynamics movement. Studies of conformity behavior, the differentiation of group solidarity functions from task orientation functions in social groups, and leadership styles inform these recommendations. Finally, recommendations on the *nation/state* level come from many bases, ranging from a synthesis of political analyses and group dynamics to a straightforward (and possibly unwarranted) generalization from various principles of individual behavior to the behavior of nations. The recommendations on the individual and group level are general prescriptions that might apply to any decisionmaking task; they generalize to foreign policymaking and preventing nuclear war only insofar as these broader tasks involve decisionmaking tasks as well. The recommendations on the nation/state level, however, are aimed largely at specific intervention points on the escalatory path toward

Table 1

PRESCRIPTIVE MEASURES

Individual Level of Analysis	
Study	**Measures**
Jervis (1968, 1976)	Decisionmakers should realize that what may seem unambiguous may be so only because of their beliefs; a consequence of this realization is that decisionmakers will more closely examine evidence contrary to their beliefs.
	Decisionmakers should be suspicious if they hold a position in which elements that are not logically connected support the same conclusion; in such cases, views may be held for psychological comfort and may not be based on evidence.
Axelrod (1976)	Before an event, decisionmakers should make assumptions, beliefs, and the predictions that follow as explicit as possible; then they will know what to expect, and surprise will indicate that beliefs should be reevaluated.
	Decisionmakers should be taught how to perform cognitive mapping of their beliefs; once a simple map is constructed, more sophisticated and complex maps can be constructed to improve the decisionmaking process.
Group Level of Analysis	
Study	**Measures**
de Rivera (1968)	Assign a group within the administration the task of constructing opposition cases.
	This group should continue to play the "devil's advocate" role after the decision is made.
Jervis (1968)	Individuals and organizations should be prevented from letting their tasks and identity be tied to specific theories and images; e.g., organizations that claim to be unbiased may not realize the extent to which the definition of their role is linked with how they perceive events and the world.
	Conflicting biases should be constructed within the decisionmaking process.
George (1972)	Multiple Advocacy should be instituted at the executive level, whereby within a decision-making group various people advocate a range of policy options.
	The executive should also define his role as evaluating and choosing options. Another person should be appointed to manage the system.
Axelrod (1976)	Use cognitive mapping techniques to help groups find a common way to express a complex situation; this may help the group see the whole the whole structure of the argument.
	Use techniques to permit experts to distinguish their beliefs about causation from their beliefs about goals. This allows experts to provide subjective opinions to groups and individuals.

Table 1 (cont.)

Group Level of Analysis	
Study	**Measures**
Janis (1982)	Encourage the group to offer objections and doubts. The leader should stress the need for critical evaluation at the outset.
	Leaders should be impartial when assigning tasks, instead of stating preferences and expectations; this allows group members to explore policy alternatives more impartially.
	Independent policy-planning and evaluation groups to work on the same question should be set up.
	The group should be subdivided to reach decisions. They should then rejoin to analyze differences.
	Group members should discuss issues with an associate and then report the results of that discussion back to the group.
	Outside experts should periodically be invited to meetings and invited to challenge the views of group members.
	A subgroup should be assigned the role of devil's advocate.
	When dealing with a rival nation, a certain block of time should be spent on surveying warning signals and constructing alternative scenarios of the rival's intentions.
	Before making the final choice, group members should express all residual doubts and rethink the entire issue.

Nation/State Level of Analysis		
Study	**Measures**	**Intervention Point[a]**
Osgood (1962)	Institute a policy of Graduated Reciprocation in Tension reduction (GRIT), a self-regulating procedure in which countries gradually, reciprocally, and unilaterally reduce tensions. It includes programs of graded reduction in areas of science, secrecy, economic, social, and cultural exchanges, as well as military and disarmament.	B, C
Pugwash Workshop (1979)	Have civil control over any military crisis including control over tactical elements.	D
	Establish a slow-down of military movements.	C
	Coordinate political/diplomatic measures with military ones.	C
	Avoid military actions that lack political objectives.	C
	Avoid military actions that could result in conflict escalation.	B, C
	Use military actions that signal interest in negotiations.	C
	Leave opponents options through choices of military and diplomatic moves.	C

Table 1 (cont.)

Nation/State Level of Analysis		
Study	Measures	Intervention Point[a]
Deutsch (1983)	Military actions that give superiority to one side or the other should be avoided.	B, C, D
	The United States and Soviet Union should agree to a ban on the first use of nuclear weapons.	A
	Establish regular meetings between representatives from NATO and the Warsaw Pact in order to: - eliminate all short-range missiles; - reduce conventional weapons; - create a demilitarized zone in Europe.	B
	Remove weapons vulnerable to first strike and institute a freeze on all weaponry and testing.	A
	The United States should seek to become independent of Middle East oil.	B
	Establish fair rules of competition with the USSR.	B
George (1983)	Establish general principles of crisis prevention between the United States and USSR.	D
	U.S.-Soviet agreements not to compete in certain areas should be established.	B
	Arrange for some form of cooperation in managing the danger of escalation when competing in a given locale. Establish norms and tacit understandings. Establish rules of engagement by setting an initial level of mutually acceptable involvement and establishing ad hoc ground rules for escalation control. Limit objectives and means in engagements.	C
White (1983)	To maintain a credible deterrent and the Soviet revulsion of war, have a good second-strike capability and adequate defensive strength in Western Europe.	A
	Negotiate a nuclear freeze.	A
	Institute a no-first-use policy.	A
	Cutback nuclear arsenals by 50 percent.	A
	Negotiate an agreement with the Soviets not to use combat forces in the Third World.	B

[a]The letters in this column correspond to the intervention points labeled in Fig. 1: A = the hostility point; B = the tension point; C = the conflict-of-interest point; D = the crisis point; E = the intrawar point.

nuclear war. For this level, we have indicated which of the intervention points depicted in Fig. 1 is the target of each recommendation.

The recommendations in Table 1 constitute a considerable investment of careful thought; however, they have not been particularly influential in determining national security policy. Occasionally, the more general recommendations on the individual and group levels have been used in various policy arenas. Some of the recommendations by Jervis and Axelrod, for example, have been tried on an experimental basis to overcome known biases of overconfidence and anchoring that rational decisionmakers are known to have. Techniques for teaching planners how to better assess the probabilities of events have been tested experimentally in intelligence forecasting and decisionmaking (e.g., Heuer, 1981), and Bayesian techniques have been used to assess experts' estimations of the likelihood of nuclear war (e.g., Press, 1983). But these techniques have yet to find their way into mainstream policymaking. The recommendation that devil's advocacy be institutionalized in government, which is represented in measures prescribed by both George and Janis, as summarized in Table 1, does not appear to have had a major effect on U.S. governmental decisionmaking.

The Graduated Reciprocation in Tension-reduction (GRIT) proposal by Osgood is an interesting and in some ways typical behavioral recommendation for policy. GRIT is based on 10 separate points, each of which is founded on a behavioral principle. There is no necessary connection among the underlying principles; each is in some sense an independent part of the whole. The idea behind GRIT is to alter the perceptions that potential antagonists have of each other's intentions such that fear, suspicion, and mistrust are replaced by a reduction in tension and an increase in trust. Although the various propositions of GRIT have each been largely supported by laboratory studies of bargaining and gaming (Lindskold, 1978), the whole package has never been fully tested, either in the laboratory or in the real world.

WHY SO LITTLE EFFECT?

Given the outpouring of effort, it is important to ask why the behavioral sciences have had such a miniscule influence on policy, particularly on national security. Jervis (1976) gives five reasons why psychology has not had a major effect on international relations, which we present below before proceeding to our own slightly different analyses.

1. Psychological models of misperception have concentrated more on errors arising from "hot" emotional reactions to situations than on cognitive, "cold" errors of calculation.
2. Most psychological theories do not account for the behavior of intelligent actors such as the international policymakers or the psychological theorizers themselves.
3. Most psychological data are collected in experimental laboratories and may not generalize to the real world.
4. Behavioral scientists have analyzed international situations from the viewpoint of their own political stances, instead of applying behavioral principles to the problem as a whole.
5. Behavioral scientists have overlooked or misunderstood the real constraints policymakers must face.

Although the first three criticisms were largely valid when they were written, new research has made them less relevant. There is a focus within cognitive psychology on the decisionmaking processes of rational, utility-maximizing decisionmakers (e.g., Upmeyer, 1981). The areas of behavioral decision theory (e.g., Kahneman, Slovic, and Tversky, 1982), cognitive schemas (e.g., Abelson, 1976) and attribution theory (e.g., Kelley and Michela, 1980) show how people sometimes faultily process information even without self-serving misperceptions.[4] Although the experimental laboratory is the most frequently used data source for psychologists, other behavioral scientists are not so

[4]This new research development aside, Jervis (1980, 1982a,b) appears to have recanted his earlier position and now advocates greater emphasis on the study of noncognitive biases in decisionmaking.

constrained. Nor, as the case surveys cited above demonstrate, are all psychologists. Recent research has used historical data in formal analyses to ask such questions as what are the characteristics of generals that affect the winning and losing of battles (Simonton, 1980), or whether the content of speeches of diplomats becomes cognitively less complex immediately preceding an outbreak of hostilities (Suedfeld and Tetlock, 1977; Suedfeld, Tetlock, and Ramirez, 1977; Tetlock, 1979). These methods can be used to address other problems that bear on international conflict and that heretofore have been considered inaccessible to formal analysis.

These last two criticisms by Jervis are still valid. American behavioral scientists (e.g., Deutsch, 1983; White, 1983) generally seek the *resolution* of conflicts--to remove the conflicts of interest. This runs counter to the view of many political analysts as well as European behavioral scientists (e.g., Billig, 1976; Plon, 1976), who accept that some conflicts are inherently not resolvable short of the elimination of one or the other side. Moreover, the importance of the political value system of a proponent of a behaviorally based recommendation is often not explicit in the argument for the recommendation. The behavioral sciences are still unspecific enough so that similar-sounding behavioral arguments in favor of each of several contradictory policy recommendations may be made.[5]

In general, behavioral scientists have displayed an ignorance of the real constraints on policymaking. To make effective policy recommendations requires a substantive knowledge of policy issues, and it is the rare individual who is cognizant of both modern policy and modern behavioral science and who also has a solid grasp of the possible. Perhaps the best contributions from the behavioral sciences have come not from behavioral scientists but rather from political analysts who have familiarized themselves with modern behavioral findings. More interdisciplinary effort, in the form of greater openness to behavioral suggestions by policy analysts and a better grasp

[5]A debate centered on recommendations made by the social psychologist Kelman for Middle Eastern policy, based on conversations by Kelman with Yasser Arafat, is very illuminating in this regard. The debate appeared in the Comments section of the October 1983 issue of *American Psychologist*.

on the substantive problems by behavioral analysts, might improve what is thus far a pessimistic picture.

The Problem of Levels of Analysis

We pose two additional explanations for the limited influence of behavioral recommendations on policy to date. The first is the problem of generalization from one level of analysis to another and the second is the problem of the self-defeating quality of behavioral recommendations.

As we have indicated, the behavioral sciences are largely concerned with models of individual behavior and small group behavior; their success, in fact, has been the establishment of a body of empirical information, from which general principles predictive of future behavior can be constructed. But can principles that hold for individuals negotiating with individuals, or small groups interacting with other small groups, also hold when nation negotiates with nation or when groups of nations interact? (See Braillard, 1983.)

The validity of generalizing from individuals to small groups cannot be automatically assumed but must somehow be tested before any recommendation based on behavioral principles can truly be said to apply to international *policymaking*. Recommendations that are addressed to the behavior of decisionmakers as individuals or as decisionmaking groups are not problematic in this regard, because they address issues on the same levels as the behavioral principles. But when a behavioral principle is invoked to formulate a policy proposal (e.g., Osgood, 1962; White, 1983), or when the relationship between the superpowers is characterized as pathological (e.g., Deutsch, 1983), the isomorphism between behavioral and policy levels of analysis must be more specifically drawn. The discussion of GRIT, above, illustrates the importance of this point.

The failure to draw the connections between the two levels of analysis more clearly has probably led policy analysts and policymakers to reject potentially appropriate, behaviorally based recommendations because they seem unrealistic and "mushy." The way to construct the necessary links is through interdisciplinary research in which behavioral principles are used to formulate political hypotheses, which

can then be tested empirically. If the hypotheses stand the test, then they may be more worthy of the attention of policymakers.

The Self-Defeating Quality of Behavioral Recommendations

The self-defeating quality of behavioral recommendations comes about because the decisionmaker who must improve decisionmaking is the very person whose decisionmaking is to be improved. What is there in a behavioral scientific recommendation that will prevent it from being misperceived in the same way that other policy recommendations are misperceived? What is there in a recommendation against bias insuring that the recommendation itself does not contain bias? Why might a group deciding whether to adopt a new set of procedural rules be immune from the biases they bring to other decisions?

Table 1 helps demonstrate the self-reflexive nature of previous recommendations drawn from the behavioral sciences. Consider first the recommendations on the individual level. These call for decisionmakers to acknowledge that their decisions contain biases and to take appropriate corrective steps. But first there is the problem of convincing the decisionmakers that their decisions are in fact biased. No person makes a policy decision knowing that his thinking is based on incorrect biases; indeed, most decisionmakers believe that they have corrected the biases of the past. In appeasing Hitler, for example, Neville Chamberlain believed that his decisions were correctly guarding against the biases that had led to the Great War. Since World War II, most American leaders have abjured appeasement in the belief that they are avoiding the biases of Neville Chamberlain. An abstract invocation against bias is therefore likely to be accepted in principle but disregarded in practice.

The group level recommendations in Table 1 largely mandate that groups adopt procedures to insure (1) an orientation to the task at hand rather than to the self-perpetuation of the group, and (2) serious consideration of wide ranges of opinions even when most group members initially agree. But these changes in group procedure are themselves subject to the group process, and it is not clear how policymaking groups can come to accept such changes. How can proposals to avoid groupthink overcome the effects of groupthink that by definition could

prevent their adoption? Even if a group asks for suggestions to improve its functioning, suggestions may well be entertained with a "yes, but" mentality. A suggestion to introduce outsiders to the group to offer novel viewpoints is a good idea, but in crises, time is of the essence and secrecy is paramount. Having a designated person play devil's advocate is good, but the rest of the group wouldn't give credence to his arguments. Permitting diverse opinions gives the President more options to consider, but his final decision *must* ultimately be implemented by his staff. "Yes, but" is a particularly effective technique from the point of view of a group maintaining its status quo but frustrating from the point of view of a change advocate. It permits the group to maintain an image of openness to change without having to do any changing.

Proposed changes in group functioning may be misinterpreted by the group and converted into suggestions that actually preserve the established form of group functioning. For example, Janis's (1982) recommendation for reevaluation before a final decision is made could be construed to mean that each of the members once more reaffirm their faith in the group decision. In this way, reevaluation could become a groupthink ritual strengthening the ties of solidarity.[6]

Most of the recommendations in Table 1 that address the nation/state level are sincere and reasonable on the surface. But some are impossible to implement because they presume the resolution of the very hostilities they attempt to resolve. For example, Deutsch (1983) recommends that fair rules of competition be established between the United States and the USSR. But such rules presume an *a priori* understanding of where the boundaries of each superpower's influence lie. If this understanding existed, then the rules would be unnecessary. Similarly, White's (1983) suggestion of a no-first-use policy presumes that conditions between the superpowers are relaxed enough that such a policy is both credible and safe. These and other

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[6]In this regard, Jervis (personal communication) indicates that the Israeli government reportedly attempted to institutionalize devil's advocacy, as recommended by George (1972) and Janis (1982). But the technique backfired; people became even more confident of their views because they now believed that they had given the alternative viewpoints a fair hearing.

recommendations attempt to deal with fundamental changes that reduce tensions. But to make such changes requires that tensions already be reduced. The self-reflexive nature of such recommendations often leads to their dismissal as unworkable and naive.

Recommending How to Recommend

If advocates of the behavioral sciences wish to have a greater voice in formulating nuclear policymaking on the basis of behavioral principles, then it is incumbent upon them to explore their own findings to learn how to have greater influence. Archibald (1970) enumerated three styles of expert intervention in policymaking: systems analysis, incrementalism, and the clinical approach. The systems analyst stands outside the system, observes it from a professional prospective, and then suggests often major structural changes that will improve system functioning. An incrementalist expert, still outside the system, assumes that the system is pretty well unchangeable and seeks small remedial steps that will gradually make the system work better. The clinical approach differs from the other two in that the expert intervenes by becoming part of the system and changing the structure of the client so that the client is better able to cope with the outside environment. As Archibald (1970, pp. 11-12) describes it,

> The clinical expert uses the boundaries of the client-system to define the boundaries of his task. This is a rather neat trick. The client-system ... is treated as a closed system whose functioning can be improved. The clinical expert ignores the messiness of the world; instead he attempts to service the client so that the client is better able to cope with it. All environmental problems are turned into problems of perception, of values, and of skills--they can then be conveniently located inside the client-system. What the clinical expert, or "change agent" as he is likely to call himself, attempts to do is change structure and processes within the client-system.

The question is how to pull off the neat trick and intervene in the established system of nuclear policymaking between the superpowers, especially because the governments of both superpowers have not been particularly receptive to messages the behavioral sciences have offered before. This is a question to which some of the recent findings of the

behavioral sciences, particularly in the areas of how attitudes are changed and how organizations are influenced, are potentially relevant. The first step toward answering that question may be to adopt a clinical approach--to recognize that the problem is an interdisciplinary one and that agents of change with differing areas of expertise must combine their talents to establish an analytically sound foundation from which convincing recommendations will emerge. The second step is to recognize that change will be accomplished in small steps; the first policy recommendations should therefore be modest in scope, with small but assured benefits, to gain the interest and trust of the policymaking community. We are now still at the first step of this process, although we can begin to anticipate later steps that would involve policymakers (initially, officials at lower echelons of decisionmaking and "retirees"; later, higher levels immediately involved in decisionmaking) participating as actors in well-designed, realistic simulations and gaming exercises that provide not only an expanded but also a more directly relevant data base for behavioral recommendations.

The next section is less a description of what measures the behavioral sciences might bestow on the policy community than a collection of geological maps suggesting promising places to begin digging for wellsprings. As with most such maps, there is no guarantee of rewards proportional to the efforts invested; nevertheless, we believe that the areas of research discussed are sufficiently attractive to merit some investment in the search. Our emphasis throughout will be on social decisionmaking--on what can be gained by examining the behavioral principles lying behind decisionmaking undertaken by interacting social bodies.

IV. RESEARCH ON SOCIAL DECISIONS

In this section, we shall explore research investigating three component areas of social decisionmaking whose findings might be applied in greater degrees to the domain of international relations and to the problem of preventing nuclear war. Some of the research treated in this section has already been applied to international relations, some has come to the attention of policy analysts but has not been extensively applied, and some is fairly new information for the field of policy analysis. The three sets of discussions that follow present the research areas not as repositories of off-the-shelf solutions to problems but as candidates for further analyses devoted to drawing explicit links between the general behavioral findings in each area and specific issues inherent in preventing nuclear war.

Each area to be discussed here figured prominently in the scenario presented in Sec. II. They are: negotiating, decisionmaking, and interpersonal perception.

The negotiating area addresses how disputants negotiate an agreement with each other even though their interests continue to conflict. Within this extensively researched area, we shall scrutinize in some detail two relevant topics: how disputants use integrative bargaining successfully and how third parties intervene effectively in disputes. These research questions have already been addressed in the general context of international relations, but not necessarily in the specific context of preventing a nuclear confrontation between the superpowers.

The decisionmaking area considers how individuals make decisions, a research question raised in many policy areas but not in international relations to any great extent. In considering decisionmaking, we shall concentrate on new developments in decisional analysis and behavioral decision theory that relate to preventing nuclear war within the broader context of its arising between two interactive decisionmakers.

The interpersonal perception area addresses the different levels at which people perceive their social interactions with each other, a research question with potentially direct practical applications to the field of international relations in general and of preventing nuclear war in particular, but an area of research heretofore largely confined to the field of psychotherapy.

Each of these three research areas will be briefly surveyed. Each survey will constitute a search for principles or findings that might be useful in policy analyses aimed at producing innovations conducive to a reduction in the likelihood of nuclear war. Suggestive conclusions based on the current state of research in each area will bring each of the surveys to a close. These conclusions are not recommendations for action but guideposts to promising areas for future inquiry.

NEGOTIATING

The topic of bargaining and negotiation has occupied a steady place in the literature of the behavioral sciences for at least the past 25 years. Although an early impetus to research on bargaining arose from theoretical attempts to model human social interaction in economic terms (e.g., Homans, 1961; Thibaut and Kelley, 1959), the application of behavioral principles to facilitating negotiations in such real problems as labor/management contract talks, marital crises, and civil suits has become a major objective of research. For example, the Program on Negotiation is a recently established inter-university effort centered at the Harvard Law School. It is designed to improve the theory and practice of conflict resolution through interdisciplinary collaborative research, educational programs for the public and professionals, and applications to many different kinds of disputes.

Negotiations have, of course, been keenly studied within the policy community as well. Ikle (1964) provided a landmark analysis of international negotiations, drawing particularly on East vs. West differences, that applied the behavioral wisdom of its day. Young (1967, 1972) attempted to incorporate considerations from the behavioral sciences, economics, and political science into how third parties function in international crises. But there has not been a great deal

of interaction between the behavioral and policy sciences on the topic of negotiations. For example, a volume prepared for the House Committee on Foreign Affairs (1979) extensively studied U.S.-Soviet negotiations from 1917 to SALT II, within a context of the entire history of diplomacy beginning with the Greeks. Yet this volume touched very little on behavioral factors in the negotiations under study.

Druckman (1983, p. 51), in a review of social psychology and international negotiations, comments:

> As a social psychologist attempts to understand international negotiations, he or she is struck by an apparent paradox: On the one hand, there is a large and sophisticated literature on bargaining processes, and, on the other, there are few attempts to apply the insights gained to the more complex forms of the phenomenon.

In an effort to resolve the paradox, Druckman identifies inappropriate theoretical models and methodological techniques that have made the behavioral study of international negotiations seemingly nonproductive.

All of the above is not to deny the existence of some convergence between the behavioral and policy sciences, however. The Program for Negotiation mentioned above is one case in point. Another is a volume providing various behavioral interpretations of Kissinger's role in the Egyptian-Israeli negotiations that followed the 1973 war between those nations (Rubin, 1981a). Additional joint efforts in the future involving the behavioral as well as the policy sciences in further research on negotiations aimed at preventing nuclear war, are well within the realm of possibility.

Many different advances have recently been made in our knowledge about negotiations. Numerous varieties of negotiation have been shown to exist. Moreover, these various possibilities can make differences in actual behavior and in a negotiator's best strategy. Among the possibilities, important differences seem to depend on whether:

- There is a third party to intervene in negotiations and, if so, what types of intervention are available,

- The issues under negotiation admit the possibility of integrative bargaining,
- The parties are monolithic or themselves made up of disputing factions,
- There are two or more than two central parties,
- The negotiating situation is a single instance in time or part of an ongoing process,
- The central parties negotiate with each other or through representatives,
- There is time pressure;
- Any agreement is truly binding on the parties concerned.

Each of these topics could be the subject of a review in itself. Summary discussions of them can be found in Bazerman and Lewicki (1983), Druckman (1977), Pruitt (1981a), Raiffa (1982), Rubin and Brown (1975), or Zartman (1978). The constraints of available time and space force us to consider only the first two topics here. Even at that, we shall first discuss integrative bargaining only briefly before examining third-party interventions in more detail. Our emphasis on third party interventions is not intended to belittle the potential contributions of other research efforts on negotiations, but rather to explore a topic whose value has already been demonstrated in international relations and whose potential application to preventing nuclear war between the superpowers, while undemonstrated and problematical, should nevertheless be considered in the light of recent research.

Integrative Bargaining

Integrative bargaining is bargaining aimed at finding outcomes that maximize the joint gains available to the negotiating parties. The term first came into use because of the influence of a book by Walton and McKersie (1965) on labor-management negotiations. If a dispute is not "constant-sum" such that any change of benefit to one party costs the other party an equivalent amount, then the bargaining positions of the negotiators may be modified in ways that benefit both. The Program on Negotiation at Harvard Law School is founded on the assumption that

integrative bargaining solutions may be found in most negotiations. Fisher and Ury (1981) present a paradigmatic example of the benefits of integrative bargaining in the story of two sisters who negotiated the division of an orange. Instead of seeking integrative solutions, they bargained over the distribution of the single piece of fruit, with the (obvious) result that each got half. One sister then squeezed her half for juice while the other used the rind of her half to put into cake batter.

Pruitt (1983) lists methods that may be used to move from initially irreconcilable demands to a negotiated settlement that offers all parties more than they might have obtained if no agreement were reached or if a settlement based entirely on distributional principles were obtained. These include:

Expanding the Pie. This means finding low-cost ways of allowing each party to achieve its goals. It is typically possible when conflict is based on a resource shortage and the amount of available resource can be fairly cheaply increased. Few international conflicts between the superpowers may be characterized this way, and so it is probably not an immediately relevant technique.

Packaging. Packaging is the combining of different issues facing negotiators into one single settlement. Concessions on an issue by one party are matched by corresponding behavior on the other side. Corresponding behavior can consist of a concession on another issue ("logrolling"), a side benefit in some currency that might be unrelated to the issues at hand ("nonspecific compensation"), or a reparation for the losses incurred by making the concession ("cost cutting"). For example, in return for the USSR having conceded to remove its missiles from Cuba in 1962, the United States agreed not to support further attempts to topple the Castro regime. Such packaging will be discussed in greater detail below under decisionmaking.

Bridging. This involves finding a novel proposal that satisfies the demands of both parties. It is achieved by uncovering the needs underlying the demands of both parties and coming up with a way of fulfilling those needs that none of the parties' original demands meets. One can argue, for example, that the Berlin Wall represents such a bridging solution. It permits the United States, Britain, and France to maintain their common interest in not having to relinquish West Berlin to the USSR, while

permitting the Soviets to maintain a basic interest in preventing East Germans from defecting to the West.

Both Fisher and Ury (1981) and Raiffa (1982) provide prescriptions for negotiators that are designed to find integrative bargaining solutions to negotiations when they exist. These prescriptions are in part based on "principled problem solving," an alternative means to more traditional bargaining practices for conducting negotiations developed by Fisher (1978; 1981). The techniques of principled problem solving, in effect, comprise methods that increase the likelihood of successful integrative bargaining. They include (Fisher and Ury, 1981):

- Regarding a negotiation as a problem-solving task rather than as a contest between the negotiating parties. The objective is a satisfactory outcome achieved efficiently, not a victory over or even an agreement with the other bargainer.
- Stressing on the underlying interests of the parties rather than the positions that result from those interests. In this way, novel positions may be developed that can better accommodate all interests.
- Constructing and maintaining objective criteria for comparing the alternative outcomes proposed. Only when alternatives can be objectively and concretely measured can they be effectively compared with one another and good decisions made to conclude a bargain.

An operationalization of these techniques is the "single-script" method of negotiating, developed by Fisher and used in the Camp David negotiations among Begin, Carter, and Sadat in 1979. Instead of each party presenting a proposal, with successive proposals (one might hope) converging to a common agreement, a third party develops a single proposal, which is presented to all the parties. The parties discuss the ways in which the proposal suits their interests and where it is lacking. The third party uses this information to construct a new version of the single proposal. The new version need not be a modification of the points of the earlier proposal; it may well include novel points that enable both parties to have their interests better

served. Each version of the proposal is phrased to the greatest extent possible in concrete terms, rather than general principles, so that when a version is found satisfactory by all parties, that version becomes the negotiated agreement. In the scenario presented in Sec. II, the U.N. Secretary General presented a single-script agreement to the superpowers during their crisis.

Third-Party Interventions

Intervention by third parties into disagreements is a technique that has existed as long as disagreements themselves. They take many forms and can appear at any time. In the international arena, third parties have often intervened in conflicts. United Nations peacekeeping forces have attempted to maintain dividing lines between warring forces in Cyprus, Lebanon, and other locations. Algeria acted as a go-between in the dispute between the United States and Iran regarding the hostage-taking in Teheran; before that, the United States unsuccessfully invoked both the United Nations and the World Court as third parties in that dispute. President Carter strongly affected the course of the negotiations between Egypt and Israel in the late 1970s. Again, our illustrative scenario in Sec. II had the U.N. Secretary General intervening in a potential nuclear crisis between the superpowers. To date, though, negotiations between superpowers on the question of reducing nuclear tension arsenals have largely been bilateral affairs.

Behavioral scientists have actively investigated the topic of third-party interventions in disputes, especially with respect to interpersonal, marital, and labor-management disputes and to international relations (Druckman, 1983; Kelman, 1983; Rubin, 1981a,b). Numerous authors (Ronald Fisher, 1972, 1983; Koch, Sondergren, and Campbell, 1976; Rubin and Brown, 1975; Thibaut and Walker, 1975; Walton, 1969; Young, 1972) have identified different points on a continuum of third-party intervention. The following list synthesizes their efforts:

1. *Dyadic Dispute Resolution*. This is a "control" category in which no third party is present (Koch, Sondergren, and Campbell, 1976), and the parties resolve their conflict by amicable resolution, compromise, coercive unilateral decision, or battle.

2. *Audience*. A third party may affect the course of a dispute by merely being present (Koch, Sondergren, and Campbell, 1976; Nader and Todd, 1978; Rubin and Brown, 1975). The third party serves as a silent reminder of ethical standards and rules, or represents a threat of intervention at a future time.

3. *Conciliation*. The third-party conciliator acts on the relationship between the opposing parties rather on than the issues themselves (Rubin and Brown, 1975; Pruitt, 1981, calls this "process mediation"). The principals are helped by diagnostic insight and working through the relationship (Walton, 1969).

4. *Mediation*. This principal mode of intervention is the offering of possible resolutions, or the suggestion of means of resolving a dispute. Mediation differs from conciliation in that the issues are directly addressed ("content mediation" in Pruitt, 1981). However, the third party has no formal power to affect the outcome. Walton (1969) terms mediation helping the principals manage their manifest conflict, while Young (1967, 1972) refers to the mediation process as a partial transformation of the strategy space of the bargainers. Within this loose definition of mediation, there is room for ample variation, as will be seen below.

5. *Moot*. The moot third party (a term from jurisprudence adopted by Thibaut and Walker, 1975) acts midway between a mediator and an arbitrator. After the opposing parties have presented their positions to each other and to the third party, all three participants discuss the issues and must reach a consensus on a settlement. The Carter interventions in the Middle East in 1979 were moot interventions.

6. *Arbitration*. An arbitrator directly resolves the issue in dispute (Walton, 1969) by imposing a settlement after having heard both parties present their final positions on the matter (Thibaut and Walker, 1975).

7. *Autocratic Resolution*. In this final mode of third-party intervention, the third party mandates a settlement that is enforced by its own superior power (Thibaut and Walker, 1975). Young (1972) distinguishes between arbitration, where the parties bind themselves to an agreement, and autocratic settlement, in which the resolution of the third party is backed by force.

With respect to the bilateral relationship between the United States and the Soviet Union, it is apparent that only some of these modes of third-party intervention are feasible. Because the superpowers are more powerful than any potential third party, autocratic resolution is impossible, and because neither superpower has ever evidenced any willingness to bind itself to arbitration in its relations with the other, that mode of intervention can also be removed from consideration. Although a moot intervention has some intuitive appeal, because the rest of the world certainly has a vital interest in preventing any conflict between the superpowers from escalating into a nuclear war, it is unrealistic to believe that a consortium of third parties is likely to have the power to affect any joint venture of the superpowers. Toward the other end of the continuum of interventions, it is unlikely that there is any meaningful difference between dyadic dispute resolution and audience in our present context; the superpowers play on the world stage, and neither is willing to relinquish its own or joint secrecy of moves. Two modes, conciliation and mediation, remain as the most likely candidates for third-party intervention. In our scenario hypothesizing a new crisis over Cuba, the Secretary General's intervention partly involved conciliation, at the beginning of the summit meeting, and mediation the remainder of the time.

The Usefulness of Conciliation and Mediation. Although conciliation has no formal place in formal legal disputes, it is often the de facto intervention. Ronald Fisher (1972, 1983) and Walton (1969) liken the conciliator to the psychotherapist and hope to improve relationships in industry and international affairs by judicious borrowing from psychotherapeutic techniques. Roger Fisher (1981) similarly bases his interventions on close attention to the process of interaction between the disputants. In international affairs, third-party hosts for arms control negotiations or summits have sometimes performed conciliatory functions. Allies of the superpowers, such as NATO or Warsaw Pact members, are theoretically better positioned to play a mediating role because they are often involved in the issues and hence can offer informed suggestions for resolving disputes.

For the more general case, Rubin (1980) surveyed the behavioral scientific literature of laboratory experiments and case studies and found that when third parties are present, there is generally more rapid and more effective conflict resolution than would otherwise occur in their absence, as parties may, without loss of face, entertain concessions. Thomas (1976) further notes that mediators can de-escalate conflicts, reopen communications, clarify issues, and even produce confrontation when appropriate. Walton (1969) emphasizes this last contribution of intervenors, pointing out that parties should be aware of their areas of inherent conflict and common interest; falsely covering up a conflictual aspect of the relationship under the guise of commonality is potentially as problematic as fighting over an area in which there is no real disagreement.

Third-party intervention is not a panacea, however. Rubin (1980) points out that if the parties feel they can solve the conflict by themselves, they will resent and attempt to avoid third-party intrusion. In an experimental study of legal conflict resolution by LaTour et al. (1976), the greater the pressure of the conflict, the more power the bargainers wished to hold for themselves. Thomas (1976) points out that although third parties may be able to terminate deadlocks, prevent escalation, and produce integrative solutions to conflicts, their interventions might also promote competition, raise the level of hostility, and diffuse the responsibility for maintaining the level of conflict within reasonable bounds.

The strategic interplay between the superpowers takes place in the form of individuals from each side acting as representatives of their constituencies (be those constituencies pressure or interest groups, political parties, or some diffuse notion of the people of each nation). This is important from a behavioral scientific viewpoint because the actors who decide the policies and behaviors of each nation are representatives for their sides, instead of direct beneficiaries of any agreements that arise. A ubiquitous finding from behavioral scientific research on bargaining is that representatives are tougher and more competitive than self-interested bargainers (e.g., Benton, 1972; Brown, 1977; Chertkoff and Esser, 1976; Lamm, 1978; Pruitt, 1981a). In

general, the more accountable the representatives are to their constituents, the tougher and less flexible they will be in their bargaining.

Only when their constituents advocate cooperation and compromise are the representatives less tough. In general, bargaining with representatives leads to joint outcomes that are worse than those that obtain when negotiators act in their own self-interest. Representatives feel a need to justify their behaviors not only to their constituents but also to their negotiating opposites, and the potential double loss of face from being perceived as "soft" can be a formidable force. In such an instance, the third-party intervenor can play a particularly effective role by suggesting solutions that might be palatable to both sides, but that neither side feels it can afford to initiate. In our Cuba/West Berlin scenario, for example, the Secretary General's proposal of a mutual military withdrawal from the two areas was one that neither side could have introduced on its own.

Characteristics of Effective Third Parties. What sorts of third parties are effective intervenors? This is a difficult question to answer in general; much depends on the specific circumstances in which an intervention takes place. For the present discussion, two characteristics of third parties are worthy of consideration: neutrality and power.

The folk wisdom is that, in order to be effective, third parties should be perceived as neutral. In general, the avoidance of the appearance of a coalition between the third party and one of the disputants should be avoided. This folk wisdom appears in the sociology of Simmel (1902), who regarded such coalition formation as almost inevitable. But more recent work (Pruitt, 1981a,b) suggests that the importance of impartiality may be overemphasized. Kissinger and Linowitz were open about their Jewishness and their closeness to Israel but dealt with this humorously and openly to develop solid interpersonal relationships with the Arabs (Sheehan, 1976). Kochan (1981) has gone so far as to suggest that because involved disputants are not likely to believe a profession of neutrality by a third party, it is perhaps better to have open biases, but with concomitant development of understanding with the less-favored disputant so as to engender trust.

With particular reference to the relationship between the superpowers, no person can be perceived as neutral in an environment where both sides believe the world to be dichotomized. Therefore, third-party intervenors could conceivably come from nations closely associated with one of the superpowers but who maintain a degree of independence.

The intervenor in any dispute between the superpowers will have less power than the protagonists. This means that the third party cannot directly affect the outcomes that the parties might achieve. However, this does not mean that the third party is helpless. Instead, the third party can clarify the perceptions of the parties, point out how issues are structured, and offer good services as a trusted communicator, much as did the U.N. Secretary General in the scenario presented in Sec. II.

The Functions of Third Parties. Rubin (1981a) summarizes the functions that third parties may have in the resolution of disputes; we view these functions in light of their potential for application to superpower disputes. The first function is as *modifier of the physical and social structure*. The conciliator or mediator may offer new avenues of communication to the parties, regulate the degree of openness or secrecy of any bargaining, guarantee the neutrality of any meeting place, apply time limitations (or extensions) to negotiations, or contribute resources of its own. Each of these functions has been seen in recent international relations. The Algerians served as a channel of communications between the United States and Iran when the hostages were taken and when direct communications were impossible because of the public postures of the two actors. Camp David provided both a neutral and a shielded place for the Egyptian-Israeli negotiations to take place; earlier Paris was a common ground where North Vietnamese and American negotiators could meet to discuss ending their war. Kissinger's various interventions in the Middle East were aimed at affecting the timing of actors' moves; he would on occasion not reveal the full extent of a party's concessions if he felt that things were moving too quickly. Indeed, the United States has repeatedly used its own resources to decrease the level of conflict of interest in the Middle East, hoping thereby to increase the likelihood of successful de-escalatory negotiations.

The second function Rubin (1981a) discusses is *modifier of the issue structure*. The third party clarifies and identifies the issues between the parties, the proposed alternatives (e.g., which issues are combined with which), the sequence in which topics are presented, and the way the issues are "packaged." It may also introduce new issues and alternative behaviors to alter any perception of intractability the protagonists may have. These functions have been more successfully applied in such conflicts as labor-management negotiations and marital disputes than in the international arena to date.

Of particular interest in the exercise of this third-party function is the packaging of issues.[1] Numerous experimental and case studies of negotiations in different areas (e.g., Froman and Cohen, 1970; Kelley, 1966; Thibaut and Walker, 1975; Yukl et al., 1976) have shown that packaging issues into a single settlement generally makes agreement between disputants more likely, more timely, and more to the benefit of both parties. Conflict fractionation, or the dividing of large intractible issues into smaller, more manageable ones that may then be packaged more easily (Ronald Fisher, 1964), is an often used mediation technique. Plott and Levine (1978), among others, have shown how the order in which issues are introduced affects the outcome of negotiations. If a third-party intervenor controlled the agenda, the likelihood of a settlement might be increased.

The third function of third parties is as *motivator of the actors*. Motivation to reach agreement can be achieved by making available vehicles for concessions without loss of face, by aiding the parties to be able to trust each other, and by separating the issues that contain real conflict of interest from the emotional hostilities and generalizations of conflict that arise from being in a confrontational position in the first place. We have discussed earlier the role of third parties in keeping the disputants from losing face. Instilling trust is more complex; perhaps this can best be accomplished by fostering what Lieberman (1964) has called *i*-trust, where each party feels that the other is trustworthy because the negotiated agreement is more in the interest of the party than violations of that agreement.

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[1]Packaging will be discussed in more detail under decision-making, below.

Arguably, *i*-trust was the basis of the Stalin-Hitler pact, where neither party particularly believed in the peaceful intentions of the other, but both were buying time in the trust that the other also found it in his interest to buy time.

In our scenario from Sec. II, the U.N. Secretary General served all three of the functions of third parties. By convening the crisis summit and bringing the new heads of state together for discussions, she altered the environment in which they made decisions. Her proposed solution radically altered the issue structure. Throughout, her interventions were intended to keep the leaders focused on their primary interests, which included in both cases maintaining the security of their homelands from attack.

Assessment: Research on Negotiating

Several tentative conclusions may be reached concerning how behavioral research on negotiating might be used to develop policy recommendations designed to lessen the chances of nuclear war between the superpowers:

1. Despite any conflicts of interest that the United States and the USSR may have, when their interests are analyzed, a common desire to remain intact and maintain their separate national identities will emerge. Because of this common desire to avoid self-destruction, which the possibility of an all-out nuclear war raises, there is a role for integrative bargaining in the negotiations between the superpowers. We might hypothesize that negotiations between them in a crisis are more amenable to integrative bargaining than negotiations at an earlier stage in the escalation of conflict, because the potential damage to both sides becomes more obvious in a crisis. The integrative techniques developed by Fisher, Raiffa, and others have been shown to work in many instances, including some international negotiations, but their potential applicability to the specific question of superpower negotiations, particularly negotiations conducted under the imminent threat of nuclear war, has not been analyzed. Such an analysis is currently underway in the Nuclear Negotiation Project at Harvard, with both behavioral scientists and policy analysts collaborating.

2. Third-party intervention in the relationship between the superpowers is likely to take the form of either conciliation or mediation, depending on whether the process of the relationship or the content of the dispute occupies the major attention of the intervenor. It can be hypothesized that for crisis situations mediation is preferable: A third party's ability to declare a "cooling-off" period or otherwise relax the pressure of time would be ideal. But failing that, the ability of a mediator to convene the disputants and set an agenda for crisis negotiations could be most useful. Earlier in the evolution of a dispute, conciliation may be a more attractive intervention. A third party may, in advance of a threatened crisis, call the disputants together without setting the agenda. In general, there is a need to know more about how third parties might be introduced into superpower negotiations in a way that they have a chance to be effective; the realities of world politics suggest that conciliators are more likely to be acceptable intermediaries than mediators, although our scenario in Sec. II suggests that, in certain circumstances, third parties could even serve as useful mediators.

3. Any third-party intervenor in a superpower confrontation will have little power and will have to intervene by acting as a good faith communicator of messages and reframer of the issues. For some types of negotiations, perhaps ones that are not related to crisis situations, third parties could be nations that have a well-defined alliance with one or the other superpower but maintain some degree of independence and have no great stake in the outcome of the negotiations at hand. For other types of negotiations, the neutrality and objectivity of the third party may be of paramount importance. There is a need for further research on what types of third parties are best for what situations before specific policy recommendations could be made; there is also a need to study how or what circumstances the superpowers might be induced to call upon or accept a third-party intervention.

4. Because of the limited options available to any third party intervening between the superpowers, the most likely function that the third party can perform is to clarify the issues that are being discussed. The way issues are packaged, the understanding that the parties have of each others' positions, and the extent to which they

believe in the sincerity of the other side are all aspects of the issues that a third party can affect to some degree. Skilled third party intervenors can sort out "real" and "false" issues, and lead negotiations to integrative solutions acceptable to both sides. As noted above, particularly in our scenario of escalation in Sec. II, the ability to frame and manage the agenda, as well as convene a meeting, could be an important aspect of third-party intervention in a crisis.

DECISIONMAKING

The decisionmakers of both the United States and the Soviet Union must choose policies, strategies, and actions in an environment that prevents them from predicting the outcome of their choices with certainty. Uncertainty arises in part from the complex and indeterminate nature of the total environment in which decisionmakers on both sides operate; in part, because the policies, strategies, and actions of both superpowers interact, that interaction forms its own environment, and that environment itself affects expected outcomes. The field of *decision theory* provides an abstract prescription for decisionmaking in such situations but is clearly inapplicable to real-world problems (Simon, 1959, p. 257):

> [Decision theory] is a theory of a man choosing among fixed and known alternatives, to each of which is attached known consequences. But when perception and cognition intervene between the [decisionmaker] and his objective environment, this model no longer proves adequate. We need a description of the choice process that recognizes that alternatives are not given, but must be sought, and a description that takes into account the arduous task of determining what consequences will follow on each alternative.

The problem raised by Simon has been approached in two interacting, complementary ways: the prescriptive and the descriptive. The prescriptive way, termed *decision analysis*, seeks to develop means to obtain satisfactory strategies for decisionmaking. The descriptive way, termed *behavioral decision theory* (e.g., Fischhoff, 1983; Kahneman, Slovic, and Tversky, 1982; Wallsten, 1980), studies how individuals perceive and structure the environments within which they make decisions.[2]

[2]The two fields of decision analysis and behavioral decision theory roughly correspond to what Horelick, Johnson, and Steinbruner (1973) termed the analytic and cybernetic paradigms for studying cognitive processes.

Decision analysis and behavioral decision theory are both embedded in the field of cognitive psychology. To make them more applicable to situations involving multiple decisionmakers--especially, to the international arena and the problem of nuclear war--the interactive aspect of decisions must be accommodated. Such an accommodation presumes that in social situations decisionmakers will seek to understand the behavior of other decisionmakers by assessing their *intentions*. That is, the potential decisions of other actors will be predicted by a decisionmaker on the basis of beliefs about what those actors are attempting to achieve, and the decisionmaker's choices will be made based, in part, on these putative intentions (Kahan, 1983).

Decision Analysis

The prescriptive decisionmaking problem has been characterized by different authors in various ways (e.g., Bell, Keeney, and Raiffa, 1977; Edwards, 1977; Fischhoff et al., 1981; Gardiner and Edwards, 1975; Keeney and Raiffa, 1976; Saaty, 1980); the following four steps represent a fair consensus of those characterizations:

1. *Define the Problem.* What is the problem that is to be solved, and what goals should be pursued? What is the status quo? Who are the bona-fide actors, who have decisions to make and have some stake in the results? What is the complete set of decision options open to each decisionmaker? What are the constraints on decision options that arise as a result of the decisions of the other actors?

2. *Evaluate the Consequences.* For each feasible combination of different actors' decisions, what are the complete sets of meaningful consequences for each of the actors? Each consequence should be evaluated from the point of view of each actor in terms of its effect on various dimensions of importance in order to construct a summary measure of its desirability for each actor.

3. *Estimate the Likelihood of Consequences.* For each combination of actors' decisions, from the point of view of each decisionmaker, estimate the likelihood of each of the major consequences.

4. *Decide.* On the basis of the likelihoods and evaluations of the consequences, and taking into consideration the decisions the other actors might make based on their own analyses as well as the degree of risk that each actor (including yourself) is willing to incur, choose a course of action.

The four steps may be collapsed into two general categories: (1) obtaining knowledge to inform the decision, and (2) specifying values that enter into the decision. The first and third steps pertain to obtaining knowledge: The decision task must be defined and its unique qualities must be understood. The techniques developed for these steps guard against misperception and miscalculation by systematically constructing the consequences of decisions (e.g., Axelrod, 1976) and estimating likelihoods for events (e.g., Stael von Holstein, 1972). The second and fourth steps above use techniques for revealing personal preferences (e.g., Gardiner and Edwards, 1975; Saaty, 1980) relating not only to evaluating the possible consequences of decisions, but also to the rules by which the decision will be made.[3]

Decision analysis in situations where there is only one bona-fide decisionmaker has been successfully employed in a variety of contexts. Keeney and Raiffa (1976) detail a successful application of the technique to deciding where and when to build a new airport to service Mexico City. Firms in the United States and in Great Britain have enrolled their managers in courses on decision analysis to improve the quality of their corporate decisionmaking (Keeney, 1975; Phillips and Wright, 1977). Weather forecasters have been able to use decision analysis techniques to improve the accuracy of their predictions of

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[3]Decision rules may vary widely. For example, if one is willing to take risks, one can choose so as to maximize expected value. If one is averse to risk, then one can choose so as to minimize any negative consequences, as in the Delaney amendment, whereby any food containing a known carcinogen may not be offered on the market, no matter how small the risk from the carcinogen. If one is willing to take a greater risk, then one can choose to gamble on a fortunate outcome, such as buying a lottery ticket. The choice of decision rule is not automatically dictated by the machinery of decision analysis. In considering crisis situations involving possible nuclear war, the choice of a decision rule could become a major consideration.

temperature and precipitation (Murphy and Winkler, 1977). Heuer (1981) has documented the use of some of the techniques of decision analysis in intelligence work. To date, though, there has not been much other work that applies decision analysis to foreign policy, and the few studies in that area (e.g., Brown and Peterson, 1975) have not perceptibly influenced policy.

But even the successful applications of decision analysis to date do not directly apply to an international situation in which there are multiple bona-fide decisionmakers. In the past, decision analysis has been applied by taking the stance of the other actors as somehow fixed and not dependent on one's own actions. A more realistic analysis should incorporate the fact that each nation's decisions will be based on the expected reaction of other nations to its moves. Such analyses would have to extend beyond the domain of decision analysis proper and expand to incorporate game theoretic concepts. There is, however, some debate on just what the role of game theory should be in such a situation (Harsanyi, 1982; Kadane and Larkey, 1982; Kahan, 1983).[4]

An example of a political analysis incorporating many of these considerations is Jervis's (1978) discussion of security dilemmas. Assume that the United States and USSR would both prefer not to be in an arms race, that neither has aggressive intentions but suspects the other of aggressive intent, and that both feel the need to have enough weapons to successfully deter attack by maintaining an assured second strike capability. Moreover, assume that the nature of weaponry is such that it is impossible to distinguish between offensive and defensive weapon systems and that the present state of technology gives the advantage in a conflict to the defending side.[5] In such a situation, a decision

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[4]The picture becomes even more complicated when more than two actors are involved, as the possibility of strategic coalitions enters the picture (e.g., Kahan and Rapoport, 1984). The East-West rivalry becomes more difficult to analyze when, instead of a fairly simple U.S.-USSR confrontation, independently minded NATO actors are included on the Western side and, to a lesser extent, other Warsaw Pact nations manifest their interests on the Eastern side.

[5]Changing any of the assumptions, of course, changes the analysis. For example, if the offense has the strategic advantage, then an arms buildup seems inevitable. We shall address the important question of misunderstanding the intentions of the other party under interpersonal perception, below.

analysis based on the presumption that the other side is building more arms might dictate that more armaments are necessary for one's own side. This arms race, undesired by either side, is what Jervis terms the security dilemma.

If it is apparent that one's own response in building arms induces the other side to increase its rate of building, then alternative strategies might be considered. For this example, the fact that the defense has a strategic advantage over the offense might lead to consideration of moderating the arms race. As Jervis (1978, p. 213) notes, if both sides have sufficiently large or invulnerable weapons inventories to guarantee their (defensive) second strike capabilities, then they can ignore all but drastic increases on the other side. The ability to ignore small increases means that the need for the other side to make small increases (remembering both sides' defensive intentions, which are unknown to each other in this case) is reduced. Therefore, if the full scenario as posited is true, then an arms race can conceivably be averted through some application of decision analysis to the problem; if one of the side's intent actually is aggressive, however, its continued arms buildup in the face of restraint on the other side will provide evidence of hostility, while the strategic advantage held by the defense will provide the non-aggressive side with time to compensate for the buildup.

In the scenario of Sec. II, the U.N. Secretary General might well have used decision analysis in her argument that the most likely outcome of an escalation to nuclear war was the exchange of territories. Although the preservation of West Berlin as a Western salient and Cuba as an Eastern bastion were *possible* outcomes, their probabilities were quite low under the circumstances, and it was unrealistic to give them heavy emphasis as decision criteria. Thus the Secretary-General played down such outcomes both in her analysis and in her argument.

Behavioral Decision Theory

Behavioral decision theory has become a large area of endeavor in its own right; what is presented here is a cursory description of some of its more directly applicable aspects. The description of decisionmaking behavior has been centered on the development by Tversky and Kahneman (1974) of *heuristics*, or simple rules of thumb that people use in decisionmaking that work most of the time but occasionally lead the decisionmaker astray. Research findings concerning heuristics have been widely disseminated, not only in the psychological literature, but also in more general scientific outlets such as *Science* and *Scientific American*. Jervis (1976; 1982a,b,c) has extensively discussed the value and limitations of heuristics for international relations. Although the heuristics of availability, representativeness, and anchoring are important determinants of an individual's cognitive representation of a decision problem, and the problem of overconfidence in one's own estimates is a potentially important bias that policymakers in particular are susceptible to, the research in these areas has already spread so far beyond its origins that we do not feel the need to recapitulate its findings here.

More recently, Tversky and Kahneman (1981; Kahneman and Tversky, 1979) have moved beyond a specification of heuristics to a consideration of *framing*, or the placing of a decision in a larger context. The way in which the problem is posed will determine the decision that is taken in major ways. Faulty and inconsistent decisions may arise from inappropriate frames of reference as well as misapplied heuristics; hence an understanding of framing is important. Tversky and Kahneman (1981) demonstrate this point with an example of a disease prevention program that may adopt one of three strategies: (1) with no intervention, it is expected that 600 people will die; (2) with intervention A, 200 people will be saved (and 400 will die); (3) with intervention B, there is a 1/3 probability that all 600 people will be saved, but a 2/3 chance that the intervention will fail (and 600 people will die). If the decision is framed in terms of the number and likelihood of people saved, then a majority of respondents prefer intervention A, while if the decision is framed in terms of the numbers

who would die (as done in parentheses here), then the majority choice is intervention B. Two aspects of framing that are particularly important are the location of the status quo point and the packaging of the elements of the decision.

Status Quo Point. The status quo point is a psychological reference marker that defines where a decisionmaker begins when evaluating alternative outcomes. Outcomes above this point are considered gains; results below that point are viewed as losses. The framing of a decision problem in terms of gains and losses has consequences, as Tversky and Kahneman have demonstrated. To take another example, more people will use credit cards instead of cash if the (identical) price differential between the two forms of payment is termed a cash discount rather than a credit card surcharge.

An important example of status quo framing is the notion of "sunk costs," or costs already incurred on an endeavor that are not recoverable. People tend to maintain their state before any costs are invested as a status quo point, rather than more appropriately regarding expenditures as gone once spent. This leads to the "I have already put so much into this that I have no alternative but to continue to spend," phenomenon. Several investigators have studied the circumstances in which decisionmakers trapped themselves into bad decisions in this manner (Brockner, Rubin, and Lang, 1981; Brockner, Shaw, and Rubin, 1979; Rubin et al., 1980; Teger, 1980). Among the findings arising from these studies are:

- People are more likely to remain in the trap of sunk costs the more the decision to stop spending must be actively taken (the default behavior is to continue to spend) rather than passively endured.
- The more parties compete for available resources, the less they attend to costs versus potential gains and the more likely is entrapment.
- Calling people's attention to long-term costs makes them less likely to fall into the trap of sinking further costs.

Status quo framing in international politics has not been uncommon; nations' memories of past status or of territory lost are long and enduring. Perhaps a paradigmatic case from recent times is the American experience in Vietnam. Locked into a mentality of South Vietnam belonging among the "democracies," American decisionmakers from the mid-1950s to the mid-1970s focused more on the potential gains to be achieved by keeping South Vietnam in a Western alliance than the long-term costs incurred in attempting to maintain that status. And when the costs were questioned, an inevitable answer was that so much had been invested already in the effort that there was no alternative "but to continue to spend." Even as South Vietnam fell in 1975, the Ford administration requested funds from an unwilling Congress for a last-minute rescue effort to prevent a complete loss of all that had been invested, including U.S. prestige.

In our Sec. II scenario, the Secretary General attempted to change the status quo point of the two superpowers. She endeavored to move it away from their earlier manifestation of hostilities and focus it almost exclusively on the crisis point at which they found themselves when she intervened. She tried to accomplish such a shift by reframing the situation that had already resulted from the crisis as one that was no longer reversible, hence should be dealt with as a new status quo, namely, the inevitability of a U.S. military victory in Cuba and a corresponding Soviet success in West Berlin.

Packaging. The packaging of decisions refers to considering the effects of multiple decisions on an individual's outcomes rather than considering the consequences of each decision separately. Tversky and Kahneman (1981) demonstrated that individual decisionmakers will make different decisions depending on how the alternatives are packaged, and argue that putting the decisions together in a common bundle leads to improved decisionmaking, even when the outcomes of the decisions are not interdependent.

The packaging of decisions takes on enhanced importance when multiple actors are involved. Political scientists have long studied packaging under the rubric of "logrolling," perhaps the dominant way in which legislation is passed in a parliamentary body containing many

different constituencies. From the behavioral point of view, packaging includes not only the benefits or costs of logrolling, but also the ways in which packaging can make a difference in how individual decisionmakers, negotiators, or members of a parliament view the alternatives open to them. Experts have disagreed on whether conflicts involving multiple issues are easier or harder to resolve than ones focusing on a single issue at a time. Rubin and Brown (1975) note that multiple-issue negotiations are cognitively more difficult and take more time to resolve. These difficulties could become important in international crises, which are by nature complex and time-constrained. Bartos (1974), in a simulation of international multi-issue negotiations, noted that there was a great deal of "erroneous" play by his actors and that he had to simplify the task in order to examine the bargaining processes of most interest to him.

Multiple issues afford the possibilities of tradeoffs that can make resolution of heretofore unresolvable conflicts possible. Walton and McKersie (1965) and Pruitt and Lewis (1977) view the incorporation of more issues into a dispute as a way of reframing that aids integrative bargaining and makes dispute resolution easier. In their view, it might be desirable in some circumstances to complicate matters by adding more issues. Behavioral scientific studies that have examined multiple issue disputes (Froman and Cohen, 1970; Kelley, 1966; Tietz and Weber, 1978; Yukl et al., 1976) have all shown that combining issues into one package leads to a greater likelihood of resolution than considering each one of them separately.

The Helsinki Final Act of 1975 demonstrates the potential importance of packaging. The Act consists of three distinct "baskets" of security, economic, and human rights issues, each of which would never have been agreed upon had they been negotiated separately. When the three were packaged together, East-West tradeoffs such as Western economic concessions in return for Eastern human rights concessions became possible.

Assessment: Decisionmaking in Superpower Relationships

Considerations from decision analysis and framing suggest some areas for investigation where behavioral models might contribute to policy analysis and, ultimately, to recommendations on preventing nuclear war:

1. Foreign policymakers might find decision analysis generally useful in decisionmaking, especially if it is combined with game theoretic analyses. However, there are two immediate barriers to adopting this suggestion in the context of preventing nuclear war. The first is that the appropriate inclusion of game theoretic considerations in decision analysis is not developed and awaits further research. The second is that the tools of decision analysis, when appropriately used, require time to carry out and might not therefore be useful except in early interventions aimed at defusing tensions. In particular, decision analysis is problematical in crisis decisionmaking when time constraints are severe. But applications in other areas, particularly in preventing crises from arising, might be promising. The periodic meetings of NATO foreign ministers could be a prime candidate for such techniques. However, given the high cost of introducing such a complexity if it did not help policymaking, preliminary studies that involve testing the efficacy of decision analysis in simulations would be a pragmatic first step.

2. Behavioral decision theory and social psychology have provided recent information about how and when status quo biases work (in particular, the bias in favor of further reinvestment after costs are sunk), but these fields do not yet say how to avert those biases. It is clear that careful consideration should be given to deciding when past costs are sunk and thus should be excluded from assessments of the status quo. The bias to maintain the status quo extends not only to economic investments, such as technical systems or foreign aid, but also to intangible investments such as commitments that may be out of date because of changing circumstances and changing actors. But before one would advocate a blanket policy of abandoning sunk costs, one should consider the new costs introduced by the abandonment. These costs can include, for international actors, how actions affect their political

support. For example, admitting that a past action was wrong might save further costs in support of that action but might also weaken support for the government and endanger other important policies. Further research, perhaps on organizational structure, is needed before any specific recommendations can be formed.

3. There is a need to consider when packaging different issues into a single decision or negotiating problem is appropriate in the area of nuclear policy. From the point of view of the quality of individual decisionmaking, packaging is a good idea; individual decisionmakers should consider the conjunction of all of their decision options as a unit. In interactive decisions, however, some issues may be nicely bundled together, but others cannot be. One particular issue may be so important that to tie it up with other issues is to risk losing it. The question for research is how one can recognize when it is time to package and when it is time to untie the package. For example, in our scenario, packaging the trade of Cuba and West Berlin was feasible for the Secretary General to suggest, but attaching to that package a redeployment of U.S. European-based missiles would have made any agreement most unlikely.

AN INTERPERSONAL PERSPECTIVE ON PERCEPTION

The behavioral sciences have devoted considerable effort to the question of how experiences, expectations, and cognitive structures influence the way in which one perceives the world. Indeed, models of the perceptual process have often been invoked by foreign policy analysts seeking to use the behavioral sciences in the study of international relations. Among the models that have been utilized in this regard are attribution theory, groupthink, and cognitive schemas. These have been brought to the attention of the foreign policy community through the efforts of such writers as George (1972, 1983), Janis (1982; Janis and Mann, 1977), Jervis (1976, 1982a,b,c), and Lebow (1981). We believe that this emphasis on perception and misperception is appropriate. Perhaps the most impressive contribution of the behavioral sciences to date has been to sensitize policymakers to the perceptual causes of past policy fiascos.

Here we introduce a view of perception that is entirely different from any used in earlier work. This view, which we shall label the *interpersonal perspective,* stresses the perceptions by two interacting parties of the nature of their relationship. It grows out of the existential phenomenological approach of the Scottish psychiatrist R. D. Laing (Laing, Phillipson, and Lee, 1966) and through a General Systems Theory approach toward interpersonal relations, as enunciated by Bateson (1972), Leary (1957), and Watzlawick, Weakland, and Fisch (1974), among others.[6]

From this perspective, any interaction between two parties occurs on multiple levels.[7] The first level, which Laing termed the *direct perspective*, consists of each party's direct perception and experience of the issues that confront them. This level involves direct action between the two parties. The dynamics of the interaction center around the extent to which the two parties' interests are in conflict. The second level, termed the *metaperspective* by Laing, Phillipson, and Lee (1966), involves the perception each party has of *how the other party* perceives the relationship. It is important to remember that perspectives represent the *perceptions* of one or the other party; no attempt is made here to ascertain or define what the "true" state of affairs is.

The interplay between the direct perspectives and the metaperspectives of both parties to an interaction is manifested in three comparisons:

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[6]The interpersonal perspective was first developed in the context of psychiatry. Treatment programs for marital and family therapy based on it have been evaluated as at least as good as and probably better than any others (e.g., Olson, Russell, and Sprenkle, 1980). Nonclinical research applications of the interpersonal perspective (e.g., Bavelas, 1978; Perkins and Kahan, 1979) have also been published, but we are not aware of any attempts to apply it to international policymaking.

[7]In the system designed by Laing, Phillipson, and Lee (1966), three levels of perception are posited, and Bateson (1972) began to develop a fourth level. Although these systems offer insights into the interpersonal perspective, we have continued the present discussion to the first two levels of perception in hopes of reducing complexity.

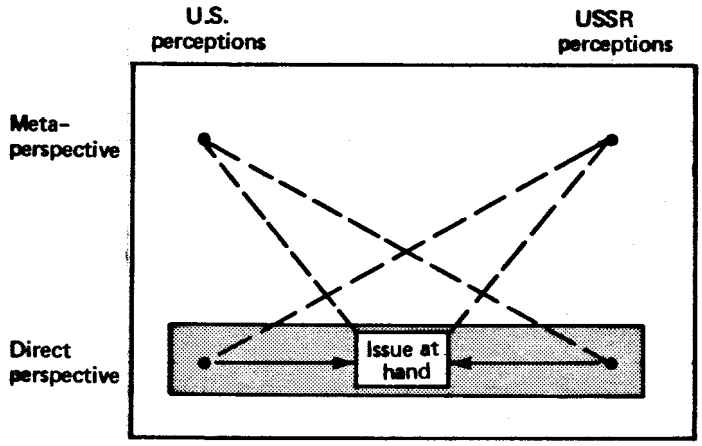
- Agreement or disagreement about the interaction,
- Understanding or misunderstanding of the relationship between the two parties with respect to the interaction, and
- Trust or mistrust that both parties agree about the interaction.

Figure 2 graphically represents the direct perspectives and metaperspectives of the United States and the Soviet Union with respect to such an issue as their relationship in Berlin or over Afghanistan. The three comparisons are illustrated in the shaded portions of Fig. 2.

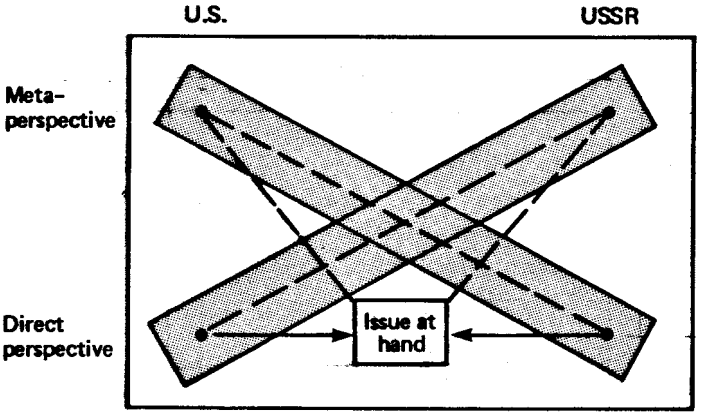
1. The direct perspective that one party has of an interaction may be compared with the direct perspective the other party has of the same interaction, as shown in Fig. 2(a). When such a comparison is made, we speak of the parties being in *agreement* or *disagreement*.

For example, the United States and the USSR might both believe that it is in their mutual best interests to maintain the status quo in Berlin; this is an *agreement* in perception. Or, the United States might believe that the superpower relationship in Afghanistan involves Soviet empire building, and the USSR might believe that the issue is one of maintaining secure national frontiers. This is an example of disagreement. We are referring here to an agreement between the superpowers' perceptions, not the presence or absence of conflict between them. Both may agree that they are unalterably at odds with each other.

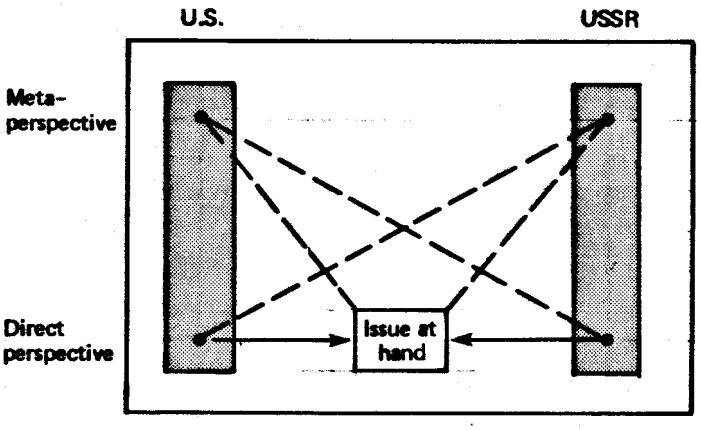
2. The metaperspective that one party has of the interaction (what it thinks the other party's direct perspective is) may be compared with the direct perspective that the other party actually holds, as shown in Fig. 2(b). In making this comparison, we say that the first party either *understands* or *misunderstands* the interaction between itself and the other party on a particular issue.



(a) Agreement versus disagreement



(b) Understanding versus misunderstanding



(c) Trust versus mistrust

Fig. 2 – Agreement, understanding, and trust

For example, if, given the direct perspectives suggested above, the United States believes that the USSR believes that the mutual best interest of both superpowers is realized by maintaining the status quo in Berlin, then the United States *understands* the relationship with respect to Berlin. But, to take the other example, if the USSR believes that the United States sees Afghanistan as an avenue for attacking the Soviet homeland, then the USSR *misunderstands* the relationship between the superpowers with respect to that issue. Although there is only one comparison involved in deciding whether two parties are in agreement or disagreement (Fig. 2(a)), there are two comparisons involved in questions of understanding or misunderstanding (Fig. 2(b)), one for each party.

3. The direct perspective one party has of an interaction with another party may be compared with the metaperspective that same party has of the interaction, as shown in Fig. 2(c). In making this comparison, we say that the party either *trusts* or *mistrusts* that there is agreement between its different perspectives, or perceptions, of the interaction. Trust or mistrust resides within a single party, and, unlike the first two comparisons, does not necessarily reflect of the true state of the relationship between the two parties.

Taking the examples above a step further, if the United States wishes to maintain the status quo in Berlin and also believes that the USSR wishes to maintain that status quo, the United States *trusts* that there is agreement in the relationship. In this example, the trust is justified. If the USSR perceives that its intervention in Afghanistan involves the issue of securing national frontiers and believes that the United States holds the same perception, it trusts that there is agreement, but that trust is incorrect. The United States, in the case of Afghanistan, *mistrusts* that there is an agreement, and in this instance, is correct in that mistrust.[8] As with understanding there are two comparisons

[8]Note from this example that trust, like agreement, does not imply a freedom from conflict of interest. The parties may be in agreement, and each may both understand and trust that there is an agreement about

possible for trust/mistrust, one for each party. Trust is unique, however, in that these comparisons are made entirely within the perceptions of a single party.

The three comparisons outlined above are not independent; if there is agreement and understanding, then it logically follows that there will be trust in the agreement; if there is disagreement and misunderstanding, then there is (misplaced) trust. When there is disagreement and understanding, then there is mistrust in agreement, and when disagreement is accompanied by misunderstanding, then there is (misplaced) mistrust.

We may consider the different varieties of perception that might arise when perceptions are symmetrical with respect to understanding and trust. In a relationship characterized by agreement and mutual understanding, there is no misperception, so one would not anticipate "irrational" behavior based on misperception of the other party. Alternatively, if there is disagreement and mutual misunderstanding, then neither party mistrusts the agreement, which in fact is nonexistent, and both may behave "irrationally" based on their misperceptions of the supposed agreement. If there is disagreement and mutual understanding, then both parties realize the danger inherent in the situation, although misperceptions may result from inadvertent confrontations; here perhaps more than elsewhere, stabilizing devices such as politico-military confidence-building measures may be useful in superpower relationships. Finally, if there is disagreement and mutual misunderstanding, then the parties falsely trust that there is an agreement, and each may be dangerously surprised by the behavior of the other. Here, in particular, monitoring of whether a party's trust (or mistrust) is misplaced is important.

Understanding and misunderstanding need not be symmetrical. For example, the parties may be in agreement, but one party understands that there is agreement, and the other misunderstands and therefore mistrusts the agreement. In this asymmetrical relationship, if the understanding party realizes the asymmetry, it assumes the burden of correcting the misunderstanding; if a third party were present, its interventions would be concentrated more on the misunderstanding party than on the understanding one.

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a conflict of interest so strong that it may be resolved only by force or the threat of force.

The interpersonal perspective just outlined is not suggested as a replacement for other, perhaps more finely honed, theory-models. Rather, it is offered as an illustration of a different way of approaching perception that might shed some new light on the interaction between the superpowers. A specific example illustrates its usefulness.

One could look at actions of the superpowers in the Arab-Israeli war of 1973 and conclude that the United States and the USSR were unable to fulfill the promise of their existing crisis prevention agreements because each of them pursued an implicitly unilateral policy in the Middle East (George, 1983). After concluding the Basic Principles Agreement of 1972, which was designed to ameliorate third-party crises, the United States and the USSR were unable to forestall or prevent the 1973 war, even though both apparently wanted to do so. Furthermore, after just having concluded the Prevention of Nuclear War Agreement in 1973, the two sides acted during the Arab-Israeli war in a manner that created a nuclear crisis between them (e.g., the United States declared a nuclear alert). An interesting question is why, so soon after establishing an agreement to avert exactly such situations, did the superpower crisis of 1973 occur?

From the interpersonal perspective, one would speculate that the problem was, at least in part, one of misperception. In particular, the superpower crisis could be attributed (among other factors) to a misplaced U.S. belief--a misunderstanding--that it and the Soviet Union were in *disagreement* about an Arab-Israeli war at the time. That is, the United States mistrusted that there was an agreement, but its mistrust was erroneous. George (1983) suggests that the Soviet leaders partially fulfilled their responsibilities under the Basic Principles Agreement by expressing concern about the situation in the Middle East during a preceding (June 1973) summit meeting. However, as George notes, the American leaders did not take the warning seriously. The reason they did not, from the interpersonal perspective, may be because the Americans mistrusted that there was, in fact, Soviet-American agreement to avert tensions in the Middle East; hence, they regarded the

Soviet communication at the summit as a stratagem in the continuing manifestation of tensions between the superpowers rather than a straightforward message about an issue on which there was supposed agreement.

Assessment: The Interpersonal Perspective

Research using the interpersonal perspective has demonstrated that *understanding* is as important to the stability of a relationship as *agreement*, which can be useful in planning policy only if it is possible to validly *trust* in the agreement, and that is possible only if true understanding obtains. From this and other findings derived from this perspective, three general observations arise that may be useful in framing future analyses of the relationship between the superpowers:

1. The existence of mutual understanding is an important consideration in the nuclear relationship between the superpowers. Ikle (1971, p. 128) underscores the importance of this point with respect to policies of deterrence:

> By relying on nuclear deterrence, the major powers are presuming a certain harmony between their own strategic views and those of other nuclear powers. While Americans and Russians have sought to understand each other's views, they have treated their differences as errors in thinking to be corrected in long disarmament conferences and numerous informal talks by patient and persistent education.

Without understanding, even if the parties trust that they are in agreement, misperceptions with grave consequences are more likely, especially during crises when time to evaluate the degree of understanding or correct misperceptions is not available. For example, the U.N. Secretary General's goals in our hypothetical summit meeting were to get both the United States and USSR to *agree, understand,* and *trust* that neither would escalate beyond Cuba/Berlin, even if they went into combat over both.

2. The importance of understanding is complicated by the problem that most of the time, a party will believe that it correctly understands, even when it misunderstands. In psychotherapeutic settings, the therapist, as a third party intervenor, after gaining

knowledge about the substantive issues separating a couple, can be objectively aware of the extent to which agreement and understanding exist and can take steps to aid misunderstanding parties to gain understanding. It is, however, premature to extend this role of a psychotherapist to any third party in the superpower relationship. The superpowers are not offering themselves as candidates for therapy, and it is not clear that what works on an individual level works for nations. Further, it is unlikely that any potential third party currently possesses both adequate therapeutic skills to intervene effectively and sufficient political comprehension of the substantive issues involved. Indeed, there is a need to define what understanding means in the international context when factions within a nation disagree among themselves about their perceptions of other nations.

3. Analyses derived from an interpersonal perspective can reveal the extent to which the relationship between the superpowers is symmetrical or asymmetrical. Although mirror-imaging and other complementary devices may be helpful in leading to equilibrated relationships between symmetric parties, there are differences between asymmetric parties that preclude mirror-imaging. From the interpersonal perspective, there are times when it is appropriate to consider that "they" are just like "us," but there are other times when such thinking is misplaced and counterproductive. Considering the symmetry of understanding may be one way to know when such thinking is appropriate; considering the asymmetry is one way to know when it is not.

A Possible Application: Backtranslation

The interpersonal perspective is fairly unfamiliar to the policy community, especially compared with behavioral research on negotiations and decisionmaking. To aid in making more concrete what the interpersonal perspective might offer, we present here one area in which it might prove to be useful, relevant to the problem of preventing nuclear war. We suggest the possibility of introducing backtranslation into the Hotline and other direct communications between the United States and the Soviet Union. Although this idea has promise, it is introduced here primarily to stimulate further thought by illustrating

one potential application of the interpersonal perspective, not to make a policy recommendation without further analysis.

Backtranslation refers to taking a communication translated from one language to another and retranslating it back to the original language. For example, a message originally sent in Russian and translated into English would be backtranslated if the English version were then translated back into Russian. Comparing the original message with the backtranslated message indicates the extent to which the original communication was understood, at least on the semantic level.

The dangers of mistranslation are obvious and have frequently been enunciated. A classical example of such mistranslation is when the English language adage "The spirit is willing but the flesh is weak" was translated into Russian and backtranslated as "The vodka is strong, but the meat is gamy." Even when a translation is correct on a word-for-word basis, misperceptions may be introduced. When *Mein Kampf* was translated from German to English in the 1930s, the translation was done by professionals who rendered Hitler's prose into correct, but academic, English. This version unfortunately did not contain the vituperation and violence of the original German, and hence gave no sense of the book's capacity to arouse anger and hatred.[9] Closer to present policy, it may be that U.S.-Soviet negotiations on banning anti-satellite weapons were impeded by a mistranslation of the Russian text that incorrectly included space shuttles among the outlawed items (Jervis, personal communication).

From the interpersonal perspective, backtranslation is an effective means of controlling some major sources of misunderstanding in communications between parties with different mother tongues. It may even be used in modified form within a single language, as in Rapoport's (1973) suggestion that before formal bargaining begins, each side give its interpretation of what the other side's position is. Any alteration between what a communicator intends to send and what is returned in a backtranslation is evidence that there is misunderstanding somewhere,

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[9]We wish to thank Konrad Kellen of The Rand Corporation for this example. Kellen is bilingual in German and English; his ability, while reading the English, to mentally backtranslate and compare what he was reading with the original German alerted him to the misunderstanding embodied in the translation.

which might be reduced by revising the message to avoid the alterations.

In negotiations between the superpowers at the United Nations or in planned conferences, there are already members of both negotiating teams who are sufficiently well-versed in the language of the other that formal backtranslation is not necessary. Although backtranslation is a technique that is useful whenever there is translation from one language to another, it is not particularly critical in communications made without time pressure, in the presence of bilingual negotiators, and when the costs of momentary misunderstanding are not great.

But when time is a factor, when the primary decisionmakers do not speak each other's languages fluently, and when the costs of misunderstanding are highest, there is a need for backtranslation. There are no current provisions for backtranslation on the Hotline between the White House and the Kremlin, nor on what might be labeled the "Warmline" communications link between the Soviet and American military commands that was recently proposed to Congress by Secretary of Defense Weinberger (1983). These are critical channels for important communications that demand the greatest efforts to insure mutual understanding.[10] If further analysis were to support its merit, backtranslation could be incorporated into the Hotline, the Warmline, and any other direct communication channels designed for crisis management, as part of normal operating procedures. In this way, senders of communications could better understand whether to trust the perceptions of the recipients; the senders might be able to take error-correcting steps in the event of misunderstanding.

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[10]The importance of the Hotline is well established. If the Warmline had been in operation, a mechanism to avert the downing of the Korean Air Lines flight may have existed. The two hours during which the aircraft was tracked by the Soviets would have provided ample time for backtranslated communications between the military commands of the superpowers about the nature of the 747 and its relationship to other nearby aircraft.

V. CONCLUDING OBSERVATIONS

The preceding account of recent advances in behavioral research on negotiating, decisionmaking, and interpersonal perception contains assessments suggesting research that could lead to specific recommendations drawn from the behavioral sciences and aimed at lowering the chances of nuclear war between the superpowers. Here we briefly suggest additional research efforts, as well as a preferred means for carrying out such efforts, that could also prove worthwhile.

SIMULATION AND GAMING

In the context of preventing a future nuclear war between the superpowers, there is probably no better laboratory for conducting behaviorally based, scientific research than that afforded by the simulation and gaming of potential international conflicts. Simulation and gaming make for a unique test bed in which one can vary policy, information, crisis, and time so as to assess the interrelationship of key variables to decision outcomes. Such a test bed can also bring behavioral scientists, policy analysts, and policymakers together in the kind of synthetic, interdisciplinary, policy-relevant collaboration for which the case was made in Sec. III.

The very nature of simulation and gaming provides rich opportunities for research. People of diverse backgrounds come together to simulate a specific crisis contingency involving several countries, in a given time period, under certain controlled conditions. Such exercises can provide a vivid experiential basis for future "real-life" contingencies. But using simulation and gaming in a more rigorous, analytical mode, as we suggest, is a little trickier. Their major analytical shortcoming is that it is very difficult to extrapolate from the experimental situation to rigorous assessments of policies, programs, or operational choices, because the results of any exercise are determined largely by the individual judgments and caprices of the players. Although a rich menu of forces, measures of effectiveness, scenarios, and perceptions can be generated, almost all control over the

underlying assumptions and their relationship to one another is relinquished. Consequently, it is next to impossible to reproduce the results in more restricted experimental situations where variables are more subject to analytic control.

To us this suggests that simulation and gaming might most profitably be used to study the decisionmaking process. By shifting the focus from outcomes to process (the means by which the outcome was derived), one would be in a position to study the perceptual issues that are so deeply embedded in the act of decisionmaking. Further, any gaming and simulation effort designed to shed light on the decisionmaking process must have, at least, the following characteristics:

- The actors in the simulation should be as close as possible in nature to the real decisionmakers in foreign policy. Given the difficulty of interrupting active policymakers from their tasks, alternative candidates could include former policymakers now retired or returned to academic settings, professionals in the Departments of State and of Defense and in other agencies who are rising on the ladder of policy authority, and persons with extensive decisionmaking experience in other realms such as international banking, international law, or multinational corporations.
- The objectives of any experimental study would be oriented more toward examining the processes by which outcomes were obtained than ascertaining the outcomes of the simulation. For this reason, careful recording of communications among players should be undertaken with the aid of computers; and when it can be done unobtrusively, actors should be asked to provide reasons for the decisions they chose.
- The player orientations would be carefully controlled. Full role descriptions and motivational sets would be provided, with manipulation checks built into the design of the study to assure that the actors have the appropriate mental sets.

- Control of the initiating scenario and consequent results would be maintained by the investigating team. The activities of the investigators would be guided by the objective, hypotheses, and outcome measures of the study. Actors could be provided technical supports (such as computer displays, calculational assistance, communication links) so that their decision processes are not masked by impediments to implementation other than those that are deliberately incorporated into the study.

SOME FURTHER AVENUES OF RESEARCH

Because the present state of knowledge leaves much to be learned, the suggestions below represent only a sampling from the more extensive menu of specific research that is possible.

Having Behavioral Scientists Participate in Games

The presence of behavioral scientists skilled in the practice of interpersonal interventions could be helpful in simulations and games of the kind recommended above. If such practitioners were charged with attending to the quality of interpersonal perception between the parties involved in the exercise, the risks of misunderstanding leading to false agreement, or to no agreement even though one was possible, could be reduced. If the practitioners played the roles of third parties, their participation would be clarifying in nature: to inform the interested parties when they were in danger of misperceiving the other side's position and to alert a party to when its own positions were misunderstood. Behavioral practitioners could reframe the statements made by each side to provide tests of understanding, and they could interrupt negotiations if it became apparent that communications were at cross purposes. Simulation studies using such behavioral practitioners as expert intervenors could test the validity of the above propositions. There are at present many psychiatrists expert in these types of interventions who also know a good deal about foreign policy; they should be participants in such research efforts.

Using Decision Analysis Appropriately

Various techniques of decision analysis have the potential to improve the quality of decisionmaking not only by providing better calculational and logical tools, but also by enabling decisionmakers to separate the multiple objectives of short and long term policy goals, their own personal aspirations, and the demands of their various constituencies. When these objectives are analytically separated, as they are in decision analysis, the decisionmaker can make conscious choices among the different objectives involved. But simulation studies are needed to ascertain what might make policymakers more receptive to such techniques, as well as how the techniques might best be used to prevent conflicts of interest from escalating into crises or beyond. As with any artificial decision aid, the techniques of decision analysis are subject to misinterpretation and misuse; further research is needed to know when they might most appropriately be used.

Establishing a Team of Soviet Simulators

The potential for misunderstanding the thinking of the other side is a theme that regularly appears in discussions of superpower relationships. A strategy to combat such misunderstanding is to have conflicting parties act out a situation in which their relationship deteriorates into conflict in a structured simulation. Proposing such a simulation between the policy decisionmakers of the superpowers is impractical, theoretically useful though it might be; instead, it is promising to consider developing a means for U.S. policymakers to confront surrogate Soviet decisionmakers in a trial run before actual policy is made.

The establishment in Washington of a team of dedicated Sovietologists, charged exclusively to "think like the Russians," is an idea that comes immediately to mind. Although the idea is not new, it has been activated before only *ad hoc*, usually in the throes of a crisis; there is no such team currently established to do just this and *only* this all of the time. Before attempting to (re)create a team of resident Soviet simulators and give it permanent status, however, we would first suggest a careful analysis of earlier efforts. Development

and testing of a new effort would follow and would incorporate the findings of research on both interpersonal and traditional perspectives on perception, as well as of other behavioral research. Comparisons could be made with successful "Red Teams" within the defense community, which play a regular role in military tactical and strategic simulations.

Ascertaining Images of Nuclear War

Psychologists, systems analysts, and political analysts generally agree that despite all the training in decision analysis, principled problem solving, or any other systematic technique, a primary driving force in decisionmaking will be largely intuitive. When high-level decisionmakers react to scientifically drawn analyses of potentially crucial situations, they almost universally reach back to personal experience, historical situations, or institutional knowledge when evaluating the analysis. In this way, internally held images about the nature of the situation exert a substantial, but largely unexplored, effect on research and policymaking decisions (Graubard, 1980). For example, Fischer (1983) compares four approaches to nuclear threat assessment that U.S. national security analysts use most frequently and shows how each approach leads to different judgments about the value and meaning of the same set of information. Decisions taken with regard to major policy issues, such as whether escalation to nuclear war is called for, could depend critically on the intuitive images that policymakers have of those issues and their surrounding contexts.

A direct and obvious implication of this finding is that it is important to understand the potentially different images that both American and Soviet policymakers might have of what nuclear war would be like. For example, the potentially different images each side may have of the aftermath of nuclear war--of what survival would mean for the survivors--could turn out to be a critical factor in any decision to use or refrain from using nuclear weapons. Such information is not currently available, but we could obtain it by using certain traditional psychological measurement techniques based on information from structured interviews and responses to prepared presentations (such as films depicting scenarios of nuclear war).

Some analysts have suggested that many important conclusions would have to converge in the minds of decisionmakers before an all-out nuclear war could occur: (1) Such a war is inevitable; (2) the time for decision is short; (3) the side that goes first will have an advantage; and (4) hope for survival or of otherwise prevailing is somehow imbedded in going first.[1] Behavioral considerations probably influence the first conclusion more than they do the second two, which seem to relate more directly to the prevailing international conditions and opposing force postures at the time of decision. Indeed, one way of interpreting what the foregoing study has attempted to show is that findings drawn from behavioral research may be able to help keep decisionmakers from concluding that nuclear war is inevitable.

Through further research on the images of conflict held by both sides, the behavioral sciences might also have something to say about the conclusion above that some hope of survival would also attend the fateful decision to launch a nuclear war. First, we might be able to identify what those images are. Second, we might be able to devise means to test the effects of various images of conflict on decisionmaking at the point of crisis. The constancy of images of nuclear war may be equally important to investigate. Such an investigation could explore, for example, the extent to which a decisionmaker's image of nuclear conflict is fixed rather than changeable in the light of new information and considerations--so fixed, perhaps, that it influences all other aspects of decisionmaking (including the ability to reach the other three conclusions noted above). Similarly, further investigation might reveal how and to what extent even an initially firm image of nuclear war and its consequences could dim and change as other considerations overwhelm it in the process of deciding to initiate or respond to a nuclear attack.

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[1]Alexander George and Barry Blechman in separate conversations with us have suggested these various conditions drawn, in part, from conclusions reached at a conference on "Reducing the Risk of Inadvertent War: Crisis Management," held at the Lyndon B. Johnson School of Public Affairs, the University of Texas at Austin, February 24 and 25, 1983.

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